No. 9900122

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Paragon Seed, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

LETTUCE

'Lighthouse'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-sixth day of July, in the year two thousand and five.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
Paragon Seed, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
EF 5117

3. VARIETY NAME
Lighthouse

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
507 Abbott Street
Salinas, California 93901

5. TELEPHONE *(include area code)*
831-753-2100

6. FAX *(include area code)*
831-753-1470

FOR OFFICIAL USE ONLY

PVPO NUMBER 200000332

FILING DATE 12/30/98

FEES RECEIVED
FILING AND EXAMINATION FEE: $ 375.00
DATE 12/30/98
CERTIFICATION FEE: $ 432.00
DATE 5/26/2005

7. GENUS AND SPECIES NAME
Lactuca sativa L.

8. FAMILY NAME *(Botanical)*
Compositae

9. CROP KIND NAME *(Common name)*
Lettuce Iceberg/Crisphead

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
CALIFORNIA

12. DATE OF INCORPORATION
March 07, 1994

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Victor Heintzberger
P.O. Box 1906
Salinas, California 93902

14. TELEPHONE *(include area code)*
831-753-2100

15. FAX *(include area code)*
831-753-1470

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

a. [X] Exhibit A. Origin and Breeding History of the Variety
b. [X] Exhibit B. Statement of Distinctness
c. [X] Exhibit C. Objective Description of the Variety
d. [X] Exhibit D. Additional Description of the Variety
e. [X] Exhibit E. Statement of the Basis of the Applicant's Ownership
f. [X] Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository)*
g. [X] Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)?*
[ ] YES *(If "yes," answer items 18 and 19 below)* [X] NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
[ ] YES [ ] NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
[ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
[X] YES *(If "yes," give names of countries and dates)* [ ] NO
California U.S.A. Date of first dale March 20, 1998

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
NAME *(Please print or type)* Victor Heintzberger		NAME *(Please print or type)*	
CAPACITY OR TITLE President	DATE 12/08/98	CAPACITY OR TITLE	DATE

Exhibit A

9900122

Lighthouse Breeding History

The objective of this crossing project was to develop a vanguard type crisphead lettuce cultivar which would produce large, compact heads under warm, long day growing conditions, and be free from tipburn and internal rib discoloration.

Selection criteria included but was not limited to :

1. large, compact head size as compared to vanguard type field plantings,
2. Low core height, bolt tolerance as compared to field plantings,
3. free of physiological disorders; tipburn, rib discoloration,
4. determinate heading and uniformity of type, and
5. vanguard class

per letter of 1/13/04 MHH 3/23/04

~~Excel~~ Excell was selected as the mother plant for its large head size, sure heading character and exceptional bolt tolerance. Seed color of Excel is tan. Fallgreen was selected as the pollen parent for vanguard leaf type, bolt tolerance and tipburn resistance. Seed color of Fallgreen is black.

Lighthouse originated from a hand pollinated cross between the crisphead lettuce varieties Excel and Fallgreen. The cross was made near Corcoran, California in July of 1994 using the technique outlined by Ryder and Johnson in "Mist Depollination of Lettuce Flowers", published in HortScience, Vol. 9(6), 1974.

Original selections were made using the single seed descent method of breeding. F_1 seed was removed from the maternal plant (designation EF5) in August, 1994, and was transferred to Salinas, California for planting in the greenhouse. F_1 seed was germinated in petrie dishes, and twenty F_1 seedlings were transferred to one gallon pots filled with standard potting soil for reproduction in the greenhouse. The F_1 seedlings carried the cross designation "EF5-1, EF5-2, EF5-3...EF5-20". Nine F_2 plants were harvested in early April of 1995. F_2 seed was again germinated in petrie dishes to overcome dormancy, and seedlings from each "EF5" line were transferred to Corcoran, California in May of 1995 for reproduction. Each plant was observed in the seed production field for leaf type segregation, early bolt tolerance, tipburn, rib discoloration, and style of heading.

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Exhibit A

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Lighthouse Breeding History

Only plants with strong heading characteristics, vanguard leaf type, slow seed stem elongation, and freedom from tipburn and rib discoloration were allowed to produce seed. In early September of 1995, seed was harvested from F_3 lines and designated as follows :

breeding line	selections	seed color
EF-5-1	1-19	segregating
EF-5-2	1-8	segregating
EF-5-4	1-5	segregating
EF-5-5	1-5, 50	segregating
EF-5-6	1-3	segregating
EF-5-9	1-6	segregating
EF-5-10	1,2	segregating
EF-5-11	1-7	segregating

Concurrent to the production of seed near Corcoran, California, the EF5 lines were planted for observation in a fall field trial near Huron, California. This trial was planted in a commercial lettuce field on August 12, 1995. EF5 lines were evaluated for leaf type, heading ability, bolt tolerance, cap leaf protection ever the head, and overall quality of the heads. EF-5-11 showed promise in this trial planting.

Fifty six of the F_3 selections from the eight families were planted for evaluation in Yuma, Arizona in the following trials :

Ranch	*Area*	*germ date*	*observation*	*Field seed*
Ott 213	Yuma, Arizona	09-29-95	12-14-95	Winter King
Gila 622	Yuma, Arizona	11-16-95	03-01-96	Gabilan

The EF5-11 selections scored well in both trials, exhibiting large, round head size, large frame size when compared to industry standards, with slow bolting character and freedom from tipburn and rib discoloration.

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Exhibit A

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Lighthouse Breeding History

Selections with extended cores, elongated heads, heads with poor head protection or with the Great Lakes "frilled" type leaf were eliminated in this trial.

In April of 1996, the following breeding lines were selected for seed increase near Corcoran, California :

line
EF-5-1-5
EF-5-1-12
EF-5-1-17
EF-5-2-7
EF-5-4-3
EF-5-5-50
EF-5-9-5
EF-5-11-6
EF-5-11-7

Concurrent with the production in the San Joaquin Valley during the summer of 1996, breeder trials were planted and evaluated in the Salinas Valley as follows :

Ranch	*Area*	*germ date*	*observation*	*Field seed*
Tannehill	King City, Ca.	05-20-98	07-29-96	Gabilan
Hook	Greenfield, Ca.	05-30-96	08-09-96	Gabilan
Ragus 206	King City, Ca.	06-04-96	08-17-96	Gabilan
Marsella	Gilroy, Ca.	06-13-96	08-12-96	Raider
Cherry Orchard	San Ardo, Ca.	07-09-96	09-10-96	Gabilan

The EF-5-11 selections continued to show promise at this stage, head size was as large or larger than field varieties, bolt tolerance was very good, and defects were noted to be equal to or less than noted in check varieties. When compared to Raider, Lighthouse was consistently larger in head size with better head conformation. Lighthouse also appeared to have better bolt tolerance than the test varieties Raider, Montemar, Fallgreen, more similar to the field plantings of the variety Gabilan. The leaf color of the EF-5-11-7 line is intermediate between Fallgreen and Excel.

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EXHIBIT A

LIGHTHOUSE BREEDING HISTORY

Lighthouse exhibits a high level of heading under conditions which are warmer than normal, whereas, Fallgreen and Gilaben plants tend to show irregular folding and non heading characteristics. Based on the 1996 observations of trials in the Southern Salinas Valley, seed was selectively harvested in September of 1996 from the seed field near Corcoran, California as follows:

Line	Selections	Seed Color
EF-5-11-7	1 to 5 & Mass	white (silver)

At this time it appeared that the EF-5-11-7 line had commercial potential, and expanded trials for Yuma were planned to determine what areas and time slots the variety would be best adapted. The Paragon breeding line AW-84, which later became Beacon, was chosen as the primary line for commercial testing, with EF-5-11-7 secondary.

In the fall of 1996, extensive trials were conducted in Yuma, Arizona where breeding lines were again evaluated for uniformity to type, uniformity of heading, bolt tolerance, and commercial desirability. Results were positive and showed that EF-5-11-7 was unique in character, distinguishable from all other varieties currently under production, and offered commercial growers a high quality product. Trials again confirmed that EF-5-11-7 selections were very uniform for horticultural type, and produced the largest head size in numerous field trials.

In April of 1997, Paragon commenced production of its 1997 seed crop near Corcoran, California. In addition to the reproduction of advanced EF-5-11-( ) breeding lines, the first crop of EF-5-11-7 was seeded. Stock seed for this crop was made up of a composite of the superior lines identified in Yuma, Arizona trials as EF-5-11-7-(4,5,Bal).

In June of 1997, the commercial seed crop of Lighthouse was rogued and was stable and uniform without variants.

Exhibit A

Lighthouse Breeding History

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In the summer of 1997, 1996 individual plant selections of the superior lines identified in Yuma, Arizona were evaluated in the southern Salinas Valley of California, as listed:

Ranch	*Area*	*germ date*	*observation*	*Field seed*
Tannehill	King City, Ca.	04-21-97	06-30-97	Gabilan
Hospital	Gilroy, Ca.	05-15-97	07-18-97	Maverick
Hansen	Gilroy, Ca.	05-19-97	07-21-97	Maverick
Ragus	King City, Ca.	05-22-97	07-24-97	Gabilan
Rio	King City, Ca.	05-23-97	07-26-97	Fallgreen
Lower Zabala	Greenfield, Ca.	05-23-97	07-27-97	Diamond
Young Ranch	Gilroy, Ca.	05-28-97	07-28-97	Maverick
Rio	King City, Ca.	06-10-97	08-14-97	Fallgreen
Ragus	King City, Ca.	06-20-97	08-28-97	Gabilan
Goshen	Gilroy, Ca.	06-24-97	09-02-97	Maverick II
Willoughby	San Juan Bautista	06-27-97	08-29-97	Montemar
Tannehill	King City, Ca.	07-03-97	09-10-97	Gabilan
Tannehill	King City, Ca.	07-09-97	09-15-97	Gabilan

On April 02, 1997, Paragon Seed, Inc. received a response letter from the United States Department of Agriculture regarding the availability of the name Lighthouse for the breeding line EF-5-11-7.

The name Lighthouse was cleared by the U.S.D.A. on April 02, 1997.

Based on exceptional results of extensive testing and trials of the experimental line EF-5-11-7, the name Lighthouse was introduced for the 1997 produced seed. The first seed of the variety was sold on March 20, 1998. Numerous trials were conducted in the Salinas Valley and the San Joaquin Valleys of California during the summer and fall of 1998 to develop commercial plant/harvest dates for growers.

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EXHIBIT A

LIGHTHOUSE BREEDING HISTORY

Selection work continued throughout 1998 to establish the EF-5-11-7-4 line for stock seed. This line was reproduced in the 1998 seed production field near Corcoran, California, and growouts were conducted in Yuma, Arizona in late November of 1998.

Lighthouse has been reproduced and judged to be stable and uniform without variants. for the past three generations.

MAH
Per original Exh. of A

9900122

EXHIBIT B

Lettuce LIGHTHOUSE NOVELTY STATEMENT

Lighthouse is a crisphead type lettuce best adapted for production in the Western United States. Lighthouse is best described as a large framed, large headed vanguard type iceberg lettuce adapted for production where Raider, Fallgreen, Empire, and Excel have been previously planted. This would be for summer harvest in the Southern Salinas Valley of California, early fall harvest in the San Joaquin Valley of California, and late fall harvest in the Imperial Valley of California and Yuma, Arizona.

Lighthouse is most similar to the varieties Beacon and Fallgreen.

Lighthouse is most similar to the variety Fallgreen; however, the seed color of Lighthouse is white (silver) whereas, the seed color of Fallgreen is black.

In trials conducted in 1997 and 1998, Lighthouse consistently produced heads with greater solidity, circumference, and weight than Fallgreen. Core height of Lighthouse is higher than Fallgreen. (See statistical comparisons Exhibit C).
Leaf color of Lighthouse is 141B whereas Fallgreen is 143B based on comparisons made at different locations in two different growing areas using the Royal Horticultural Colour Charts. Leaf color comparisons were made in Huron, California in October 2003, Yuma, Arizona in December, 2003 and November, 2004 which support this claim.

Lighthouse is similar to Beacon; however, leaf color of Lighthouse is 141B versus Beacon which is 139A. The leaf surface of Lighthouse is moderately savoyed, whereas, the leaf surface of Beacon is smooth. (See Exhibit D photographs)

Lighthouse produces heads which are round in shape, whereas, heads of Beacon tend to be slightly elongated in the vertical axis. Maturity of Lighthouse and Beacon are similar as determined by solidity measurements. Head size of Lighthouse is larger than Beacon, with a larger circumference. Core height of Lighthouse is higher than the core height of Beacon. (See statistical measurements). The leaf margin of Lighthouse is entire and rounded, most similar to Vanguard. The leaf margin of Beacon is best described as shallowly dentate.

Lighthouse is adapted to a slightly later harvest period than Beacon in the San Joaquin Valley and Imperial Valley of California and Yuma, Arizona. (See Exhibit D for suggested planting dates/harvest dates).

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EXHIBIT B

LIGHTHOUSE NOVELTY STATEMENT

Lighthouse is similar to the variety Gabilan; however, Lighthouse is one to two days earlier maturing than Gabilan. Head size of the two varieties is similar, however, head weight of Lighthouse is heavier, and core height is lower than Gabilan. (See statistical comparisons in Exhibit C).

Lighthouse is adapted for fall harvest in the San Joaquin Valley of California from approximately October 20 to November 5. Gabilan is not adapted to fall harvest in the San Joaquin Valley of California.

The variety Gabilan is very susceptible to leaf tissue damage associated with chemicals used to defoliate cotton plants, leaving whitish spots on wrapper and cap leaves. Lighthouse may show occasional spotting as does most varieties harvested in these same time periods.

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PARAGON SEED COMPANY

P.O. Box 1906 Salinas, Ca. 93902 831-753-2100

Beacon vs Lighthouse

Grown on the Tannehill Ranch 201s King City, Ca. Harvest date : 08-15-98

	Beacon	Light house	Beacon	Light house	Beacon	Light house	Beacon	Light house
	Solidity	Solidity	Circum	Circum	Weight	Weight	Core Ht	Core Ht
Count	24	24	24	24	24	24	24	24
Sum	85.5	83.5	1,132.0	1,155.0	19,300.0	19,825.0	35.75	38.25
Mean	3.56	3.48	47.17	48.13	804.17	826.04	1.49	1.59
Maximum Value	4.0	4.0	48.0	50.0	875.0	900.0	2.00	2.00
Minimum Value	3.0	3.0	46.0	46.5	725.0	750.0	1.25	1.50
Variance	0.14	0.10	0.60	0.77	1,449.28	1,656.48	0.04	0.02
Std.Dev	0.37	0.31	0.78	0.88	38.07	40.70	0.20	0.14
Joint Variance	*****	0.12	*****	0.68	*****	1,552.88	*****	0.03
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	0.843	*****	4.014	*****	1.923	*****	2.06
Level of Significance	*****	.4037	*****	.0002	*****	.0607	*****	.0451
Confidence Level %	*****	59.634	*****	99.978	*****	93.931	*****	95.49
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS FOR SAMPLES	4.0	3.0	47.0	48.5	875	875	1.50	1.75
	4.0	3.0	48.0	48.0	775	825	1.50	1.50
	3.5	3.5	47.5	50.0	800	875	2.00	2.00
	3.0	3.5	46.0	48.0	750	800	1.50	1.50
Solidity measured on a scale of 1 to 5	3.5	3.5	48.0	47.5	800	750	1.25	1.50
	3.0	3.5	48.0	49.0	775	825	1.25	1.50
	3.0	3.5	46.5	49.0	825	800	1.50	1.50
	3.0	4.0	48.0	48.0	850	775	1.75	1.50
Note: The Level of Significance is determined by using Excel 5's 2-tail type 2 built in T-test funcion directly over the ranges of data.	3.5	3.5	47.0	48.5	775	825	1.50	1.50
	4.0	3.0	47.5	47.0	850	800	1.50	1.75
	3.0	3.0	47.0	46.5	800	775	1.50	1.50
	3.5	3.5	48.0	48.0	725	750	1.50	1.50
	4.0	3.5	46.0	48.5	850	875	1.25	1.50
	3.5	3.5	46.5	47.5	800	850	1.50	1.75
	3.5	4.0	48.0	47.0	775	850	1.25	1.50
	4.0	3.0	48.0	48.0	850	825	1.50	1.50
	4.0	3.5	47.0	48.5	825	850	1.50	1.75
	3.5	4.0	46.5	47.5	800	825	1.25	1.50
	3.5	3.5	48.0	48.0	800	875	1.25	1.50
	4.0	3.5	48.0	48.0	825	850	1.50	1.75
	3.5	4.0	47.0	47.0	775	850	1.50	1.50
	3.5	3.5	46.0	48.0	800	800	2.00	1.75
	4.0	3.5	46.5	50.0	750	800	1.50	1.75
	3.5	3.5	46.0	49.0	850	900	1.50	1.50

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PARAGON SEED COMPANY

P.O. Box 1906 Salinas, Ca. 93902 408-753-2100

Beacon vs Lighthouse

Grown on Diener Ranch, Huron, Ca. **Harvest date -: October 30,1997**

	Beacon	Light-house	Beacon	Light-house	Beacon	Light-house	Beacon	Light-house
	Solidity	Solidity	Circum	Circum	Weight	Weight	Core Ht	Core Ht
Count	24	24	24	24	24	24	24	24
Sum	73.5	73.5	1,109.7	1,119.0	18,075.0	18,650.0	26.50	33.75
Mean	3.06	3.06	46.24	46.63	753.13	777.08	1.10	1.41
Maximum Value	3.5	3.5	48.0	48.0	825.0	825.0	1.50	1.75
Minimum Value	3.0	3.0	44.0	45.0	675.0	725.0	1.00	1.00
Variance	0.03	0.03	0.82	0.55	1,593.07	919.38	0.04	0.05
Std.Dev	0.17	0.17	0.91	0.74	39.91	30.32	0.21	0.22
Joint Variance	*****	0.03	*****	0.69	*****	1,256.23	*****	0.05
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	0.000	*****	1.614	*****	2.342	*****	4.91
Level of Significance	*****	1.0000	*****	0.1134	*****	0.0236	*****	0.0000
Confidence Level %	*****	0.000	*****	88.658	*****	97.641	*****	100.00
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS	3.0	3.0	46.2	46.5	700	825	1.00	1.50
FOR	3.0	3.0	46.0	47.0	800	800	1.00	1.50
SAMPLES	3.0	3.0	45.5	47.0	775	775	1.00	1.50
	3.0	3.5	44.0	47.5	750	800	1.00	1.50
Solidity measured	3.0	3.0	45.0	46.0	800	775	1.00	1.00
on a scale of	3.0	3.0	47.0	47.0	825	800	1.50	1.50
1 to 5	3.0	3.0	48.0	47.0	750	725	1.00	1.00
	3.0	3.0	46.0	46.0	700	750	1.00	1.50
Note:	3.0	3.0	46.0	47.5	725	825	1.00	1.50
The Level of	3.5	3.0	47.0	45.0	750	725	1.50	1.00
Significance is	3.0	3.0	47.0	46.0	725	800	1.50	1.50
determined by	3.0	3.0	47.0	45.0	750	750	1.00	1.50
using Excel 5's	3.0	3.0	46.0	46.0	750	775	1.00	1.50
2-tail type 2	3.0	3.5	45.0	47.0	675	800	1.00	1.50
built in T-test	3.0	3.0	46.0	47.0	725	800	1.00	1.50
function directly	3.0	3.0	47.0	46.5	750	800	1.00	1.50
over the	3.0	3.0	45.0	47.0	725	775	1.00	1.50
ranges of data	3.0	3.0	46.0	46.0	750	750	1.00	1.00
	3.5	3.5	47.0	47.0	825	750	1.50	1.50
	3.0	3.0	47.0	48.0	750	800	1.00	1.75
	3.0	3.0	47.0	47.0	725	750	1.00	1.50
	3.0	3.0	46.0	46.0	750	725	1.00	1.00
	3.5	3.0	47.0	47.0	825	800	1.50	1.50
	3.0	3.0	46.0	47.0	775	775	1.00	1.50

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PARAGON SEED COMPANY

P.O. Box 1905 Salinas, Ca. 93902 408-753-2100

Variety : Lighthouse vs Beacon

Grown on Tannehill Ranch, King City — Harvest date : July 01, 1997

	Beacon	Light house	Beacon	Light house	Beacon	Light house	Beacon	Light house
	Solidity	Solidity	Circum	Circum	Weight	Weight	Core Ht	Core Ht
Count	24	24	24	24	24	24	24	24
Sum	90.5	99.5	1,074.5	1,072.5	17,850.0	18,075.0	24.25	24.50
Mean	3.77	4.15	44.77	44.69	743.75	753.13	1.01	1.02
Maximum Value	4.0	5.0	46.0	48.0	825.0	825.0	1.25	1.25
Minimum Value	3.0	3.5	43.0	43.0	675.0	675.0	1.00	0.75
Variance	0.11	0.18	0.70	1.65	1,644.02	1,864.81	0.00	0.01
Std.Dev	0.33	0.43	0.83	1.28	40.55	43.18	0.05	0.10
Joint Variance	*****	0.15	*****	1.17	*****	1,754.42	*****	0.01
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	3.396	*****	0.267	*****	0.775	*****	0.45
Level of Significance	*****	0.0014	*****	0.7909	*****	0.4421	*****	0.6568
Confidence Level %	*****	99.858	*****	20.910	*****	55.790	*****	34.32
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS	3.5	4.0	44.0	43.0	675	700	1.00	1.00
FOR	4.0	4.0	45.0	44.0	700	675	1.00	0.75
SAMPLES	3.5	5.0	44.0	44.0	700	725	1.00	1.00
	4.0	4.0	46.0	43.0	750	775	1.00	1.00
Solidity measured	4.0	4.0	45.0	45.0	750	750	1.00	1.00
on a scale of	3.5	5.0	45.0	44.0	725	725	1.00	1.00
1 to 5	4.0	5.0	46.0	46.0	750	775	1.00	1.00
	4.0	4.0	44.0	48.0	725	800	1.00	1.00
Note:	4.0	4.0	43.0	44.0	775	700	1.00	1.00
The Level of	4.0	3.5	44.0	44.0	775	725	1.00	1.00
Significance is	3.5	4.0	45.5	43.0	675	700	1.00	1.00
determined by	4.0	4.0	45.0	45.0	725	800	1.00	1.00
using Excel 5's	4.0	4.0	45.5	45.0	825	825	1.00	1.00
2-tail type 2	4.0	3.5	45.5	46.0	800	825	1.00	1.25
built-in T-test	4.0	4.0	44.0	45.0	750	775	1.00	1.25
function directly	3.0	4.0	46.0	46.0	775	775	1.00	1.00
over the	4.0	4.0	44.0	43.0	700	700	1.00	1.00
ranges of data	4.0	4.5	45.0	45.0	725	725	1.00	1.00
	4.0	5.0	43.5	44.0	800	775	1.00	1.00
	4.0	4.0	45.0	46.0	775	750	1.00	1.00
	3.5	4.0	45.0	43.0	725	750	1.00	1.00
	3.5	4.0	44.0	45.0	800	800	1.00	1.25
	3.5	4.0	45.5	45.5	725	725	1.25	1.00
	3.0	4.0	45.0	46.0	725	800	1.00	1.00

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9900122

PARAGON SEED COMPANY

P.O. Box 1906 Salinas, Ca. 93902 408-753-2100

Fallgreen vs Lighthouse

Grown on Diener Ranch, Huron Ca — Harvest date-: October 30,1997

	Fall-green Solidity	Light-house Solidity	Fall-green Circum	Light-house Circum	Fall-green Weight	Light-house Weight	Fall-green Core Ht	Light-house Core Ht
Count	24	24	24	24	24	24	24	24
Sum	70.0	73.0	1,048.0	1,119.0	16,750.0	18,650.0	25.00	33.75
Mean	2.92	3.04	43.67	46.63	697.92	777.08	1.04	1.41
Maximum Value	3.0	3.5	45.0	48.0	725.0	825.0	1.50	1.75
Minimum Value	2.5	3.0	42.0	45.0	675.0	725.0	1.00	1.00
Variance	0.04	0.02	0.75	0.55	375.91	919.38	0.02	0.05
Std.Dev	0.19	0.14	0.87	0.74	19.39	30.32	0.14	0.22
Joint Variance	*****	0.03	*****	0.65	*****	647.64	*****	0.03
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	2.584	*****	12.699	*****	10.776	*****	6.86
Level of Significance	*****	0.0130	*****	0.0000	*****	0.0000	*****	0.0000
Confidence Level %	*****	98.700	*****	100.000	*****	100.000	*****	100.00
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS	2.5	3.0	44.0	46.5	675	825	1.00	1.50
FOR	3.0	3.0	45.0	47.0	700	800	1.00	1.50
SAMPLES	3.0	3.0	44.0	47.0	675	775	1.00	1.50
	3.0	3.5	45.0	47.5	700	800	1.00	1.50
Solidity measured	3.0	3.0	44.0	46.0	700	775	1.00	1.00
on a scale of	2.5	3.0	43.0	47.0	675	800	1.00	1.50
1 to 5	2.5	3.0	44.0	47.0	725	725	1.00	1.00
	3.0	3.0	45.0	46.0	700	750	1.00	1.50
Note:	3.0	3.0	44.0	47.5	675	825	1.50	1.50
The Level of	3.0	3.0	43.0	45.0	700	725	1.00	1.00
Significance is	3.0	3.0	42.0	46.0	675	800	1.00	1.50
determined by	3.0	3.0	44.0	45.0	725	750	1.50	1.50
using Excel 6's	3.0	3.0	43.0	46.0	675	775	1.00	1.50
2-tail type 2	3.0	3.5	43.0	47.0	700	800	1.00	1.50
built in T-test	3.0	3.0	42.0	47.0	725	800	1.00	1.50
function directly	3.0	3.0	43.0	46.5	700	800	1.00	1.50
over the	2.5	3.0	43.0	47.0	675	775	1.00	1.50
ranges of data	3.0	3.0	43.0	46.0	700	750	1.00	1.00
	3.0	3.0	44.0	47.0	725	750	1.00	1.50
	3.0	3.0	44.0	48.0	700	800	1.00	1.75
	3.0	3.0	44.0	47.0	725	750	1.00	1.50
	3.0	3.0	43.0	46.0	675	725	1.00	1.00
	3.0	3.0	44.0	47.0	700	800	1.00	1.50
	3.0	3.0	45.0	47.0	725	775	1.00	1.50

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9900122

PARAGON SEED COMPANY

P.O. Box 1906 Salinas, Ca. 93902 408-753-2100

Lighthouse vs Fallgreen

Grown on Rio Ranch — Harvest date-: August 7, 1997

	Light house Solidity	Fall-green Solidity	Light house Circum	Fall-green Circum	Light house Weight	Fall-green Weight	Light house Core Ht	Fall-green Core Ht
Count	24	24	24	24	24	24	24	24
Sum	69.0	58.0	1,105.0	1,066.0	14,350.0	12,250.0	29.20	25.25
Mean	2.88	2.42	46.04	44.42	597.92	510.42	1.22	1.05
Maximum Value	4.0	3.0	50.0	49.0	750.0	675.0	2.00	1.50
Minimum Value	2.0	2.0	44.0	39.0	450.0	350.0	1.00	1.00
Variance	0.24	0.21	2.13	5.38	9,071.56	9,234.60	0.07	0.02
Std.Dev	0.49	0.46	1.46	2.32	95.24	96.10	0.26	0.13
Joint Variance	*****	0.23	*****	3.76	*****	9,153.08	*****	0.04
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	3.330	*****	2.904	*****	3.168	*****	2.80
Level of Significance	*****	0.0017	*****	0.0056	*****	0.0027	*****	0.0075
Confidence Level %	*****	99.828	*****	99.436	*****	99.728	*****	99.25
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS FOR SAMPLES	2.0	2.0	46.0	45.0	475	400	1.00	1.00
	2.5	3.0	46.0	44.0	525	525	1.00	1.00
	4.0	3.0	47.0	44.0	725	475	1.50	1.00
	2.0	3.0	45.0	44.0	475	525	1.00	1.00
Solidity measured on a scale of 1 to 5	3.0	2.5	46.0	44.0	625	525	1.00	1.00
	3.0	2.5	46.0	49.0	675	625	2.00	1.00
	2.5	2.0	46.0	47.0	525	400	1.20	1.00
	2.0	3.0	45.0	46.0	475	625	1.00	1.00
	3.0	3.0	46.0	43.0	675	575	1.25	1.00
	3.0	3.0	44.0	46.0	675	625	1.50	1.25
	3.0	2.5	46.0	46.0	525	625	1.00	1.00
	2.0	2.0	45.0	43.0	475	450	1.00	1.25
	3.0	3.0	46.0	48.0	450	675	1.00	1.00
	3.0	3.0	48.0	45.0	525	675	1.25	1.00
	3.0	2.0	46.0	45.0	625	450	1.25	1.50
	3.5	2.0	45.0	43.0	525	450	1.25	1.25
	3.0	2.0	45.0	46.0	625	475	1.00	1.00
	3.0	2.0	44.0	40.0	675	350	1.00	1.00
	3.5	2.0	45.0	46.0	750	575	1.50	1.00
	3.0	2.5	49.0	45.0	725	475	1.25	1.00
	3.0	2.0	45.0	41.0	625	450	1.00	1.00
	3.0	2.0	46.0	39.0	625	350	1.25	1.00
	3.0	2.0	50.0	43.0	625	475	1.50	1.00
	3.0	2.0	48.0	44.0	725	475	1.50	1.00

Note: The Level of Significance is determined by using Excel 5's 2-tail type 2 built in T-test function directly over the ranges of data.

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9900122

PARAGON SEED COMPANY

P.O. Box 1908 Salinas, Ca. 93902 408-753-2100

Varieties : Gabilan vs Lighthouse

Grown on Tannehill Ranch, King City **Harvest date : 09-10-98**

	Gabilan	Light house	Gabilan	Light house	Gabilan	Light house	Gabilan	Light house
	Solidity	Solidity	Circum	Circum	Weight	Weight	Core Ht	Core Ht
Count	24	24	24	24	24	24	24	24
Sum	83.5	88.5	1,103.0	1,081.5	19,150.0	19,875.0	29.50	24.25
Mean	3.48	3.69	45.96	45.06	797.92	828.13	1.23	1.01
Maximum Value	4.0	4.0	48.0	47.0	900.0	925.0	1.50	1.25
Minimum Value	3.0	3.0	44.0	44.0	725.0	750.0	1.00	1.00
Variance	0.16	0.13	1.24	0.70	2,495.47	1,701.77	0.06	0.00
Std.Dev	0.40	0.36	1.11	0.84	49.95	41.25	0.25	0.05
Joint Variance	*****	0.14	*****	0.97	*****	2,098.62	*****	0.03
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	1.899	*****	3.151	*****	2.284	*****	4.13
Level of Significance	*****	0.0639	*****	0.0029	*****	0.0270	*****	0.0002
Confidence Level %	*****	93.611	*****	99.714	*****	97.298	*****	99.98
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS FOR SAMPLES	4.0	3.5	46.0	47.0	900	850	1.50	1.00
	4.0	4.0	45.0	45.0	875	850	1.50	1.00
	3.5	4.0	46.0	44.0	800	825	1.50	1.00
	4.0	3.5	47.0	44.5	850	825	1.00	1.00
Solidity measured on a scale of 1 to 5	3.5	4.0	47.0	45.5	775	850	1.00	1.00
	3.5	3.0	48.0	44.0	750	800	1.50	1.00
	3.0	3.5	44.0	44.0	750	850	1.50	1.00
	3.0	4.0	46.0	44.5	725	800	1.00	1.00
Note: The Level of Significance is determined by using Excel 5's 2-tail type 2 built in T-test function directly over the ranges of data	3.5	3.5	46.0	44.5	775	750	1.00	1.00
	4.0	3.0	46.0	44.0	800	775	1.00	1.00
	3.5	3.5	45.0	46.0	750	825	1.50	1.00
	3.0	3.5	48.0	46.0	775	775	1.50	1.00
	3.0	4.0	45.0	45.0	725	825	1.50	1.00
	3.5	3.5	46.0	44.5	775	800	1.00	1.00
	3.0	3.0	46.5	44.0	750	850	1.00	1.00
	3.0	3.5	47.0	45.0	775	775	1.00	1.00
	4.0	4.0	44.5	45.5	825	825	1.50	1.00
	3.5	4.0	46.0	45.0	800	825	1.50	1.00
	4.0	3.5	44.0	46.0	825	875	1.00	1.00
	3.5	4.0	47.0	45.5	850	825	1.00	1.00
	3.0	4.0	45.0	46.0	800	925	1.00	1.00
	3.5	4.0	47.0	44.5	825	800	1.50	1.00
	4.0	4.0	46.0	45.5	900	875	1.00	1.00
	3.0	4.0	45.0	46.0	775	900	1.00	1.25

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PARAGON SEED COMPANY

P.O. Box 1906 Salinas, Ca. 93902 831-753-2100

Gabilan vs Lighthouse

Grown on the Tannehill Ranch 201s King City, Ca. Harvest date : 08-15-98

	Gabilan	Light house	Gabilan	Light house	Gabilan	Light house	Gabilan	Light house
	Solidity	Solidity	Circum	Circum	Weight	Weight	Core Ht	Core Ht
Count	24	24	24	24	24	24	24	24
Sum	78.0	83.5	1,167.5	1,155.0	18,775.0	19,825.0	42.50	38.25
Mean	3.25	3.48	48.65	48.13	782.29	826.04	1.77	1.59
Maximum Value	4.0	4.0	51.0	50.0	850.0	900.0	2.00	2.00
Minimum Value	3.0	3.0	46.0	46.5	725.0	750.0	1.50	1.50
Variance	0.11	0.10	1.40	0.77	1,276.04	1,656.48	0.04	0.02
Std.Dev	0.33	0.31	1.18	0.88	35.72	40.70	0.21	0.14
Joint Variance	*****	0.10	*****	1.08	*****	1,466.26	*****	0.03
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	2.473	*****	1.733	*****	3.958	*****	3.44
Level of Significance	*****	.0171	*****	.0898	*****	.0003	*****	.0013
Confidence Level %	*****	98.285	*****	91.019	*****	99.974	*****	99.87
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS FOR SAMPLES	3.5	3.0	48.0	48.5	850	875	1.75	1.75
	3.0	3.0	47.0	48.0	800	825	2.00	1.50
	3.0	3.5	48.0	50.0	775	875	1.50	2.00
	3.5	3.5	47.5	48.0	725	800	1.75	1.50
Solidity measured on a scale of 1 to 5	3.0	3.5	49.0	47.5	750	750	1.75	1.50
	3.0	3.5	49.0	49.0	725	825	2.00	1.50
	3.0	3.5	50.5	49.0	775	800	1.50	1.50
	3.5	4.0	49.0	48.0	725	775	1.75	1.50
Note: The Level of Significance is determined by using Excel 5's 2-tail type 2 built in T-test function directly over the ranges of data.	4.0	3.5	48.0	48.5	775	825	2.00	1.50
	3.5	3.0	49.0	47.0	800	800	2.00	1.75
	3.0	3.0	49.5	46.5	725	775	1.50	1.50
	3.0	3.5	46.0	48.0	800	750	1.50	1.50
	3.0	3.5	48.0	48.5	825	875	1.50	1.50
	3.5	3.5	46.5	47.5	775	850	2.00	1.75
	3.5	4.0	49.0	47.0	775	850	1.75	1.50
	3.0	3.0	48.0	48.0	800	825	1.50	1.50
	3.0	3.5	49.0	48.5	825	850	1.75	1.75
	3.0	4.0	50.0	47.5	775	825	2.00	1.50
	4.0	3.5	49.0	48.0	800	875	2.00	1.50
	3.0	3.5	49.0	48.0	825	850	1.75	1.75
	3.0	4.0	48.5	47.0	775	850	1.50	1.50
	3.5	3.5	51.0	48.0	750	800	2.00	1.75
	3.0	3.5	50.0	50.0	800	800	2.00	1.75
	3.5	3.5	49.0	49.0	825	900	1.75	1.50

9900122

PARAGON SEED COMPANY

P.O. Box 1906 Salinas, Ca. 93902 408-759-2100

Varieties : Gabilan vs Lighthouse

Grown on Tannehill Ranch, King City — **Harvest date : July 01, 1997**

	Gabilan	Light house	Gabilan	Light house	Gabilan	Light house	Gabilan	Light house
	Solidity	Solidity	Circum	Circum	Weight	Weight	Core Ht	Core Ht
Count	24	24	24	24	24	24	24	24
Sum	83.5	99.5	1,095.5	1,072.5	18,975.0	18,075.0	27.50	24.50
Mean	3.48	4.15	45.65	44.69	790.63	753.13	1.15	1.02
Maximum Value	4.0	5.0	48.0	48.0	850.0	825.0	1.50	1.25
Minimum Value	3.0	3.5	43.0	43.0	700.0	675.0	0.75	0.75
Variance	0.18	0.18	2.10	1.65	1,511.55	1,864.81	0.05	0.01
Std.Dev	0.43	0.43	1.45	1.28	38.88	43.18	0.22	0.10
Joint Variance	*****	0.18	*****	1.87	*****	1,688.18	*****	0.03
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	5.379	*****	2.426	*****	3.162	*****	2.52
Level of Significance	*****	0.0000	*****	0.0193	*****	0.0028	*****	0.0151
Confidence Level %	*****	100.000	*****	98.075	*****	99.722	*****	98.49
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS FOR SAMPLES	3.5	4.0	48.0	43.0	825	700	1.50	1.00
	4.0	4.0	46.0	44.0	700	675	1.25	0.75
	4.0	5.0	48.0	44.0	825	725	1.50	1.00
	4.0	4.0	46.0	43.0	775	775	1.00	1.00
Solidity measured on a scale of 1 to 5	4.0	4.0	46.5	45.0	825	750	1.50	1.00
	3.0	5.0	44.0	44.0	750	725	1.25	1.00
	3.0	5.0	45.0	46.0	775	775	1.00	1.00
	3.0	4.0	46.0	48.0	750	800	1.00	1.00
Note:	3.5	4.0	44.0	44.0	825	700	1.00	1.00
The Level of Significance is determined by using Excel 5's 2-tail type 2 built in T-test function directly over the ranges of data	3.5	3.5	44.0	44.0	800	725	1.00	1.00
	3.0	4.0	48.0	43.0	775	700	1.00	1.00
	3.5	4.0	46.0	45.0	825	800	1.25	1.00
	4.0	4.0	45.0	45.0	850	825	1.50	1.25
	3.0	3.5	44.0	46.0	775	825	1.25	1.25
	4.0	4.0	45.0	45.0	775	775	1.00	1.00
	4.0	4.0	48.0	46.0	800	775	1.50	1.00
	4.0	4.0	46.0	43.0	775	700	1.00	1.00
	3.5	4.5	44.0	45.0	825	725	1.00	1.00
	3.0	5.0	43.0	44.0	825	775	0.75	1.00
	3.0	4.0	46.0	46.0	775	750	1.00	1.00
	3.0	4.0	46.0	43.0	800	750	1.00	1.00
	3.5	4.0	45.0	45.0	825	800	1.00	1.25
	3.5	4.0	47.0	45.5	800	725	1.25	1.00
	3.0	4.0	45.0	46.0	700	800	1.00	1.00

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9900122

PARAGON SEED COMPANY

P.O. Box 1905 Salinas, Ca. 93902 831-753-2100

Beacon vs Gabilan

Grown on the Tannehill Ranch 201s **Harvest date : 08-15-98**

	Beacon	Gabilan	Beacon	Gabilan	Beacon	Gabilan	Beacon	Gabilan
	Solidity	Solidity	Circum	Circum	Weight	Weight	Core Ht	Core Ht
Count	24	24	24	24	24	24	24	24
Sum	85.5	78.0	1,132.0	1,167.5	19,300.0	18,775.0	35.75	42.50
Mean	3.56	3.25	47.17	48.65	804.17	782.29	1.49	1.77
Maximum Value	4.0	4.0	48.0	51.0	875.0	850.0	2.00	2.00
Minimum Value	3.0	3.0	46.0	46.0	725.0	725.0	1.25	1.50
Variance	0.14	0.11	0.60	1.40	1,449.28	1,276.04	0.04	0.04
Std.Dev	0.37	0.33	0.78	1.18	38.07	35.72	0.20	0.21
Joint Variance	*****	0.12	*****	1.00	*****	1,362.66	*****	0.04
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	3.087	*****	5.120	*****	2.053	*****	4.76
Level of Significance	*****	.0034	*****	.0000	*****	.0458	*****	.0000
Confidence Level %	*****	99.658	*****	99.999	*****	95.419	*****	100.00
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS FOR SAMPLES	4.0	3.5	47.0	48.0	875	850	1.50	1.75
	4.0	3.0	48.0	47.0	775	800	1.50	2.00
	3.5	3.0	47.5	48.0	800	775	2.00	1.50
	3.0	3.5	46.0	47.5	750	725	1.50	1.75
Solidity measured on a scale of 1 to 5	3.5	3.0	48.0	49.0	800	750	1.25	1.75
	3.0	3.0	48.0	49.0	775	725	1.25	2.00
	3.0	3.0	46.5	50.5	825	775	1.50	1.50
	3.0	3.5	48.0	49.0	850	725	1.75	1.75
Note: The Level of Significance is determined by using Excel 5's 2-tail type 2 built in T-test function directly over the ranges of data.	3.5	4.0	47.0	48.0	775	775	1.50	2.00
	4.0	3.5	47.5	49.0	850	800	1.50	2.00
	3.0	3.0	47.0	49.5	800	725	1.50	1.50
	3.5	3.0	48.0	46.0	725	800	1.50	1.50
	4.0	3.0	46.0	48.0	850	825	1.25	1.50
	3.5	3.5	46.5	46.5	800	775	1.50	2.00
	3.5	3.5	48.0	49.0	775	775	1.25	1.75
	4.0	3.0	48.0	48.0	850	800	1.50	1.50
	4.0	3.0	47.0	49.0	825	825	1.50	1.75
	3.5	3.0	46.5	50.0	800	775	1.25	2.00
	3.5	4.0	48.0	49.0	800	800	1.25	2.00
	4.0	3.0	48.0	49.0	825	825	1.50	1.75
	3.5	3.0	47.0	48.5	775	775	1.50	1.50
	3.5	3.5	46.0	51.0	800	750	2.00	2.00
	4.0	3.0	46.5	50.0	750	800	1.50	2.00
	3.5	3.5	46.0	49.0	850	825	1.50	1.75

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3000122

PARAGON SEED COMPANY

P.O. Box 1906 Salinas, Ca. 93902 831-753-2100

Beacon vs Gabilan

Grown on the Tannehill Ranch 108 **Harvest date : 08-05-98**

	Beacon	Gabilan	Beacon	Gabilan	Beacon	Gabilan	Beacon	Gabilan
	Solidity	Solidity	Circum	Circum	Weight	Weight	Core Ht	Core Ht
Count	24	24	24	24	24	24	24	24
Sum	84.5	76.5	1,133.5	1,162.5	19,875.0	19,075.0	36.25	45.50
Mean	3.52	3.19	47.23	48.44	828.13	794.79	1.51	1.90
Maximum Value	4.0	3.5	49.0	51.0	900.0	850.0	1.75	2.00
Minimum Value	2.5	2.5	45.5	46.5	700.0	700.0	1.25	1.50
Variance	0.14	0.08	0.96	0.85	2,027.85	1,303.22	0.01	0.04
Std.Dev	0.38	0.29	0.98	0.92	45.03	36.10	0.09	0.19
Joint Variance	*****	0.11	*****	0.91	*****	1,665.53	*****	0.02
Jt Deg of Freedom	*****	46	*****	46	*****	46	*****	46.00
t-Test Parameter	*****	3.452	*****	4.399	*****	2.829	*****	8.84
Level of Significance	*****	.0012	*****	.0001	*****	.0069	*****	.0000
Confidence Level %	*****	99.880	*****	99.994	*****	99.311	*****	100.00
	1 to 5	1 to 5	CM'S	CM'S	Grams	Grams	Inches	Inches
MEASUREMENTS FOR SAMPLES	4.0	3.5	48.0	49.0	900	800	1.50	2.00
	3.5	3.0	48.5	49.5	825	825	1.50	2.00
	3.0	3.0	47.0	48.0	800	800	1.50	2.00
	3.5	3.5	48.0	48.5	850	825	1.50	2.00
Solidity measured on a scale of 1 to 5	4.0	3.0	46.0	49.0	875	725	1.75	1.50
	3.5	3.0	47.0	48.5	850	700	1.50	2.00
	4.0	3.5	46.5	51.0	875	800	1.50	2.00
	3.5	3.0	48.0	49.0	850	775	1.50	2.00
Note: The Level of Significance is determined by using Excel 5's 2-tail type 2 built in T-test function directly over the ranges of data.	3.5	3.0	46.5	48.0	825	800	1.50	2.00
	3.5	3.0	48.0	48.5	850	825	1.50	2.00
	3.5	3.0	49.0	48.0	800	800	1.50	2.00
	4.0	3.0	48.0	47.0	900	825	1.50	2.00
	3.5	3.5	48.0	49.5	825	800	1.50	2.00
	3.5	2.5	47.5	48.0	825	725	1.50	2.00
	3.5	3.0	48.0	48.0	850	800	1.25	2.00
	3.0	3.0	46.0	48.0	775	775	1.50	2.00
	3.0	3.5	45.5	46.5	750	825	1.50	2.00
	3.5	3.5	47.0	48.0	800	800	1.50	1.75
	3.5	3.0	46.0	48.0	825	775	1.50	1.50
	2.5	3.5	48.0	48.5	700	825	1.50	1.75
	3.5	3.0	46.0	49.0	825	800	1.50	1.50
	3.5	3.5	48.0	49.5	800	850	1.50	2.00
	4.0	3.5	46.0	48.0	850	775	1.75	1.50
	4.0	3.5	47.0	47.5	850	825	1.50	2.00

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION

EXHIBIT C

OBJECTIVE DESCRIPTION OF VARIETY
LETTUCE *Lactuca sativa*

NAME OF APPLICANT (S): Paragon Seed, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code):
507 Abbott Street
Salinas, California 93901

FOR OFFICIAL USE ONLY
PVPO NUMBER: 9900122
VARIETY NAME: Lighthouse
EXPERIMENTAL DESIGNATION: EF 5117

Place numbers in the boxes for the characters which best describe this variety. Measured data should be the mean of an appropriate number (at least 10) of well spaced plants. Royal Horticultural Society or any recognized color standard may be used to determine plant colors.

The location of the test area is: King City , Ca.

Color System Used: Royal Horticultural Society

1. PLANT TYPE: *(See list of suggested check varieties page 4.)*

[0 6]
01=Cutting/Leaf
02=Butterhead
03=Bibb
04=Cos or Romaine
05=Great Lakes Group
06=Vanguard Group
07=Imperial Group
08=Eastern (Ithaca) Group
09=Stem
10=Latin
11=OTHER

2. SEED:

COLOR: [1] 1=White (Silver Gray) 2=Black (Gray Brown) 3=Brown (Amber)

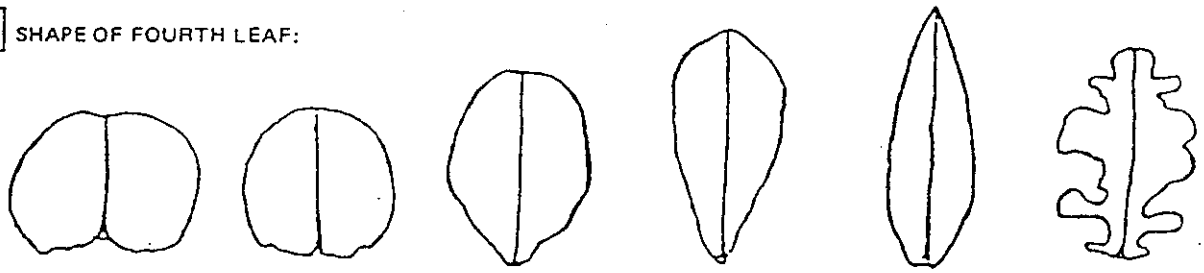
LIGHT DORMANCY: [2] 1=Light Required 2=Light Not Required

HEAT DORMANCY: [1] 1=Susceptible 2=Not Susceptible

3. COTYLEDON TO FOURTH LEAF STAGE: NOTE: Provide a color photograph or photocopy of the fourth leaf from 20 day old seedling grown under optimal conditions.

[3] SHAPE OF COTYLEDONS: 1=Broad 2=Intermediate 3=Spatulate

[3] SHAPE OF FOURTH LEAF:



[2 0] LENGTH/WIDTH INDEX OF FOURTH LEAF: L/W x 10

[3] APICAL MARGIN: [3] BASAL MARGIN: 1=Entire 2=Crenate/Gnawed 3=Finely Dentate 4=Moderately Dentate 5=Coarsely Dentate 6=Incised 7=Lobed 8=OTHER *(specify)*

[2] UNDULATION: 1=Flat 2=Slight 3=Medium 4=Marked

[4] GREEN COLOR: 1=Yellow Green 2=Light Green 3=Medium Green 4=Dark Green 5=Blue Green 6=Silver Green 7=Gray Green

ANTHOCYANIN:

[1] DISTRIBUTION: 1=Absent 2=Margin Only 3=Spotted 4=Throughout 5=OTHER *(specify)*

[0] CONCENTRATION: 1=Light 2=Moderate 3=Intense

[1] ROLLING: 1=Absent 2=Present

[2] CUPPING: 1=Uncupped 2=Slight 3=Markedly

[1] REFLEXING: 1=None 2=Apical Margin 3=Lateral Margins

20

4. MATURE LEAVES *(observe harvest-mature outer leaves)*:

NOTE: Provide color photo of harvest-mature leaves which accurately shows color and margin characteristics.

9900122

MARGIN:

[2]	INCISION DEPTH: *(deepest penetration of the margin)*	1=Absent/Shallow (Dark Green Boston)	2=Moderate (Vanguard)	3=Deep (Great Lakes 659)
[4]	INDENTATION: *(finest divisions of the margin)*	1=Entire (Dark Green Boston) 2=Shallowly Dentate (Great Lakes 65)	3=Deeply Dentate (Great Lakes 659) 4=Crenate (Vanguard)	5=OTHER *(specify)*
[2]	UNDULATION OF THE APICAL MARGIN:	1=Absent/Slight (Dark Green Boston)	2=Moderate (Vanguard)	3=Strong (Great Lakes 659)
[4]	GREEN COLOR:	1=Very Light Green (Bibb) 2=Light Green (Minetto)	3=Medium Green (Great Lakes) 4=Dark Green (Vanguard)	5=Very Dark Green 6=OTHER

ANTHOCYANIN *(grown at or below 10 C)*:

[1]	DISTRIBUTION:	1=Absent 2=Margin Only (Big Boston)	3=Spotted (Calif. Cream Butter) 4=Throughout (Prize Head)	5=OTHER *(specify)*
[0]	CONCENTRATION:	1=Light (Iceberg)	2=Moderate (Prize Head)	3=Intense (Ruby)
[2]	SIZE:	1=Small	2=Medium	3=Large
[1]	GLOSSINESS:	1=Dull (Vanguard)	2=Moderate (Salinas)	3=Glossy (Great Lakes)
[2]	BLISTERING:	1=Absent/Slight (Salinas)	2=Moderate (Vanguard)	3=Strong (Prize Head)
[2]	LEAF THICKNESS:	1=Thin	2=Intermediate	3=Thick
[1]	TRICHOMES:	1=Absent (smooth)	2=Present (spiny)	

5. PLANT *(at market stage. Choose a comparison variety appropriate for this type.)*:

[5][0] SPREAD OF FRAME LEAVES: cm This Variety [4][8] cm Beacon *(specify comparison variety)*

[1][6] HEAD DIAMETER *(market trimmed with single cap leaf)*: cm This Variety [1][5] cm Beacon *(specify comparison variety)*

[3] HEAD SHAPE: 1=Flattened, 2=Slightly Flattened, 3=Spherical, 4=Elongate, 5=Non-Heading, 6=OTHER

[2] HEAD SIZE CLASS: 1=Small, 2=Medium, 3=Large

[2][4] HEAD COUNT PER CARTON

[7][5][3] HEAD WEIGHT: g This Variety [7][4][3] g Beacon *(specify comparison variety)*

[3] HEAD FIRMNESS: 1=Loose, 2=Moderate, 3=Firm, 4=Very Firm

6. BUTT *(bottom of market-trimmed head)*:

[2] SHAPE: 1=Slightly Concave, 2=Flat, 3=Rounded

[1] MIDRIB: 1=Flattened (Salinas), 2=Moderately Raised, 3=Prominently Raised (Great Lakes 659)

7. CORE *(stem of market-trimmed head)*:

[3][6] mm Diameter at base of head

[3].[6] Ratio of head diameter/core diameter

[4][2] Core height from base of head to apex: mm This Variety [3][8] mm Beacon *(specify comparison variety)*

8. BOLTING *(Give First Water Date 04/28/97)*: NOTE: First Water Date is the date seed first receives adequate moisture to germinate. This can and often does equal the planting date.

[7][6] Number of days from First Water Date to seed stalk emergence *(summer conditions)*: This Variety [7][6] Beacon *(specify comparison variety)*

[1] BOLTING CLASS: 1=Very Slow, 2=Slow, 3=Medium, 4=Rapid, 5=Very Rapid

[9][2] Height of mature seed stalk: cm This Variety [9][0] cm Beacon *(specify comparison variety)*

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BOLTING cont'd. on next page

9900122

Spread of Bolter Plant *(at widest point)*:

[5 0] cm This Variety [4 8] cm Beacon *(specify comparison variety)*

[1] BOLTER LEAVES: 1=Straight 2=Curved

[1] MARGIN: 1=Entire 2=Dentate

[3] COLOR: 1=Light Green 2=Medium Green 3=Dark Green

BOLTER HABIT:

[2] TERMINAL INFLORESCENCE: 1=Absent 2=Present

[2] LATERAL SHOOTS: *(above head)* 1=Absent 2=Present

[1] BASAL SIDE SHOOTS: 1=Absent 2=Present

9. MATURITY *(earliness of harvest-mature head formation)*:

NOTE: Complete this section for at least one season.

SEASON	Applic. 1/ #of days	Check 1/ #of days	CHECK VARIETY 2/
Spring	80	80	Beacon
Summer	68	68	Beacon
Fall	75	75	Beacon
Winter			not adapted

Give planting date(s), and location(s):

Spring plant 02-07-98 harvest 04-29-98 Texas Hill, Arizona

Summer plant 06-20-97 Harvest 08-28-97 King City , California

Fall plant 09-18-98 Harvest 12-02-98 Yuma, Arizona

Winter not adapted

1/ First water date to harvest. 2/ Fill in check variety name on the appropriate line.

10. ADAPTATION:

PRIMARY REGIONS OF ADAPTION *(tested and proven adapted)*: (0=Not tested 1=Not Adapted 2=Adapted)

[2] Southwest *(Calif., Ariz. desert)* [2] West Coast [0] Northeast

[0] Northcentral [0] Southeast [0] OTHER

SEASON:

[2] Spring (area Yuma, Arizona) [2] Fall (area Yuma, Arizona Huron, Bakersfield, El Centro CA)

[2] Summer (area King City, Gilroy, Ca.) [0] Winter (area)

[0] GREENHOUSE: 0=Not tested 1=Not Adapted 2=Adapted

[1] SOIL TYPE: 1=Mineral 2=Organic 3=Both

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11. DISEASES AND STRESS REACTIONS (0=Not tested; 1=Susceptible; 2=Intermediate; 3=Resistant; 4=Highly resistant; 5=Tolerant):

9900122

VIRUS

- [0] Big Vein
- [0] Lettuce Mosaic
- [0] Cucumber Mosaic
- [0] Broad Bean Wilt
- [0] Turnip Mosaic
- [0] Beet Western Yellows
- [0] Lett. Infectious Yellows
- [0] Other Virus _____

FUNGAL/BACTERIAL

- [1] Corky Root Rot (Pythium Root Rot)
- [0] Downy Mildew (Races _____)
- [0] Powdery Mildew
- [1] Sclerotinia Rot
- [0] Bacterial Soft Rot (Pseudomonas spp. & others)
- [0] Botrytis (Gray Mold)
- [0] OTHER _____

INSECTS

- [0] Cabbage Loopers
- [0] Root Aphids
- [0] Green Peach Aphid
- [0] Other Insect _____

PHYSIOLOGICAL/STRESS

- [3] Tipburn
- [3] Heat
- [0] Drought
- [0] Cold
- [0] Salt
- [3] Brown Rib (Rib Discoloration, Rib Blight)
- [0] OTHER _____

POST HARVEST

- [1] Pink Rib
- [0] Russet Spotting
- [0] Rusty Brown Discoloration
- [0] Internal Rib Necrosis (Blackheart, Gray Rib, Gray Streak)
- [0] Brown Stain

12. BIOCHEMICAL OR ELECTROPHORETIC MARKERS:

none tested

13. COMMENTS:

SUGGESTED CHECK VARIETIES

TYPE	CHECK VARIETY
1) CUTTING/LEAF	SALAD BOWL
2) BUTTERHEAD	DARK GREEN BOSTON
3) B1B8	B1B8
4) COS, OR ROMAINE	PARRIS ISLAND
5) GREAT LAKES GROUP	GREAT LAKES 659-700
6) VANGUARD GROUP	VANGUARD
7) IMPERIAL GROUP	VIVA
8) EASTERN GROUP	ITHACA
9) STEM	CELTUCE
10) LATIN	MATCHLESS

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Paragon Seed, Inc. Iceberg Lettuce Lighthouse

PVP Number _____

9900122

Beacon **Lighthouse**

Photocopy of the fourth leaf from a 20 day old plant grown under continuous light at 20 degrees C.

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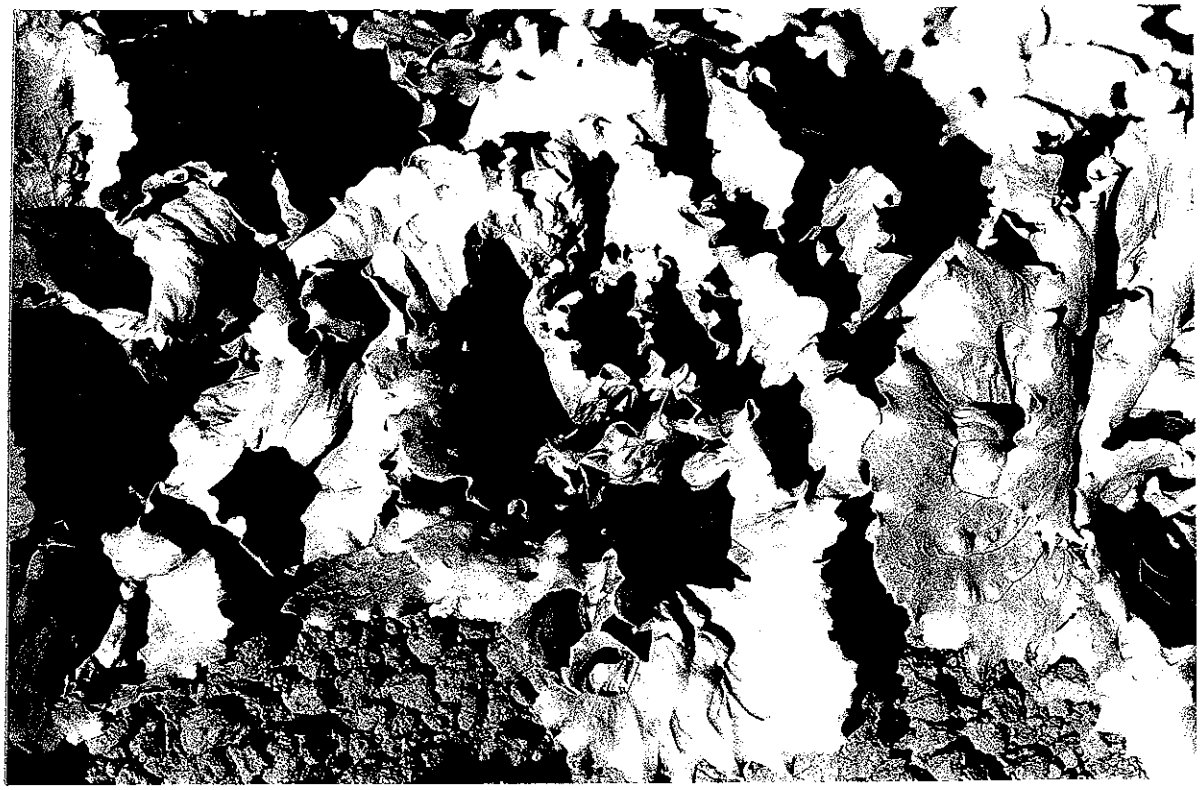
Paragon Seed , Inc. Huron, Ca. 10/98

Exhibit C Photograph of Leaf Margin

Lighthouse Mature head

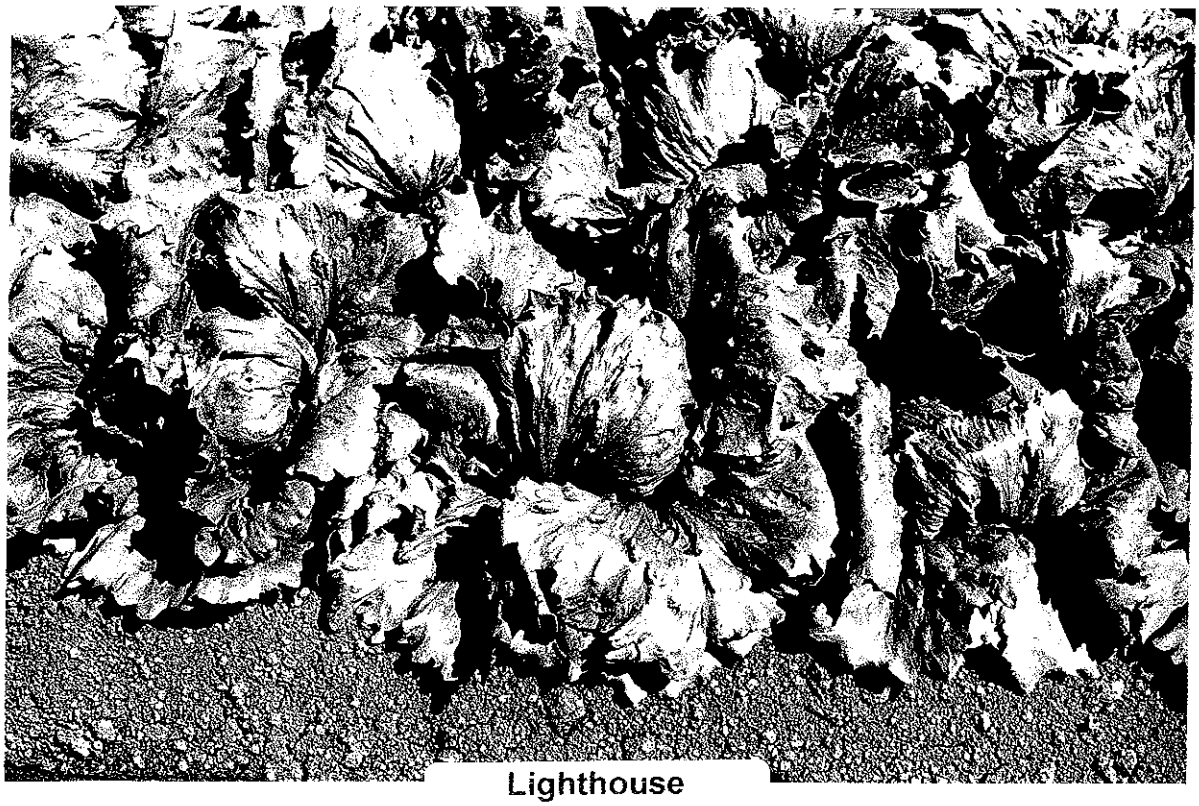


Lighthouse rosette stage

Lighthouse

Beacon

Beacon

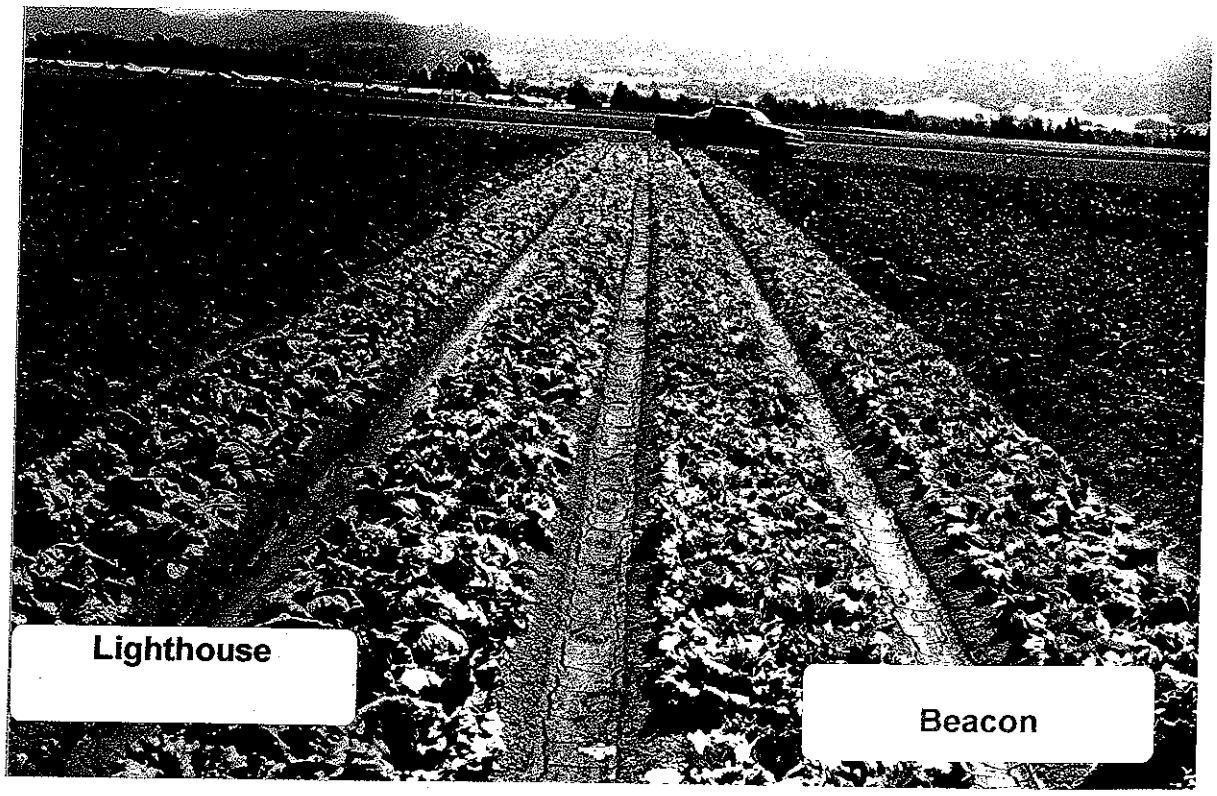


Lighthouse

Lighthouse

Beacon


Beacon
Lighthouse


Lighthouse
Beacon

Paragon Seed, Inc. Yuma,Arizona

November , 1997

Lighthouse

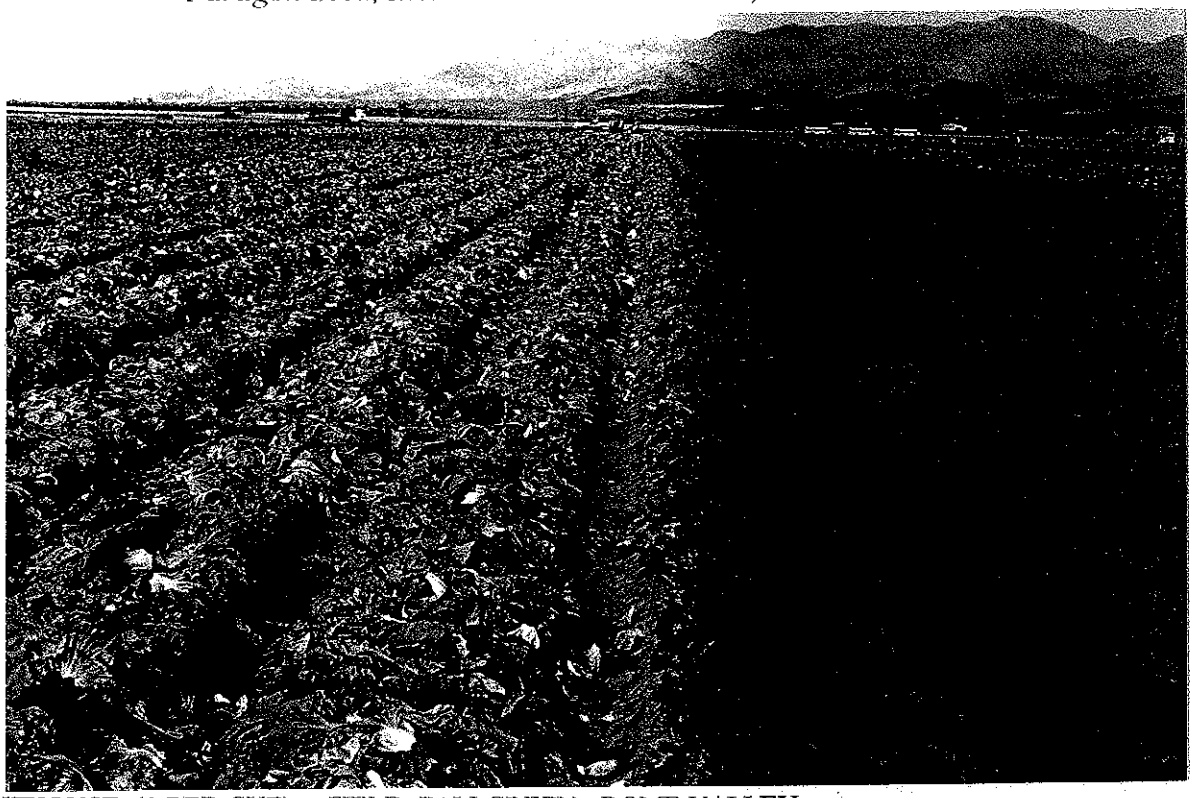
Beacon

Paragon Seed, Inc. *Yuma, Arizona*
November 1997

2 BEDS LIGHTHOUSE

FIELD PLANTING FALLGREEN DOME VALLEY

Paragon Seed, Inc. *Yuma, Arizona*



2 BEDS LIGHTHOUSE (1 BED CUT) FIELD FALLGREEN DOME **VALLEY**

LIGHTHOUSE

Exhibit D

0000122

Lighthouse Additional Description of Variety

Lighthouse is a large framed, large headed vanguard type heading lettuce.
Lighthouse seed color is white (silver).
Lighthouse has been tested and found to be adapted to the following production areas :

King City, California	summer/fall harvest
Hollister/Gilroy, California	summer/fall harvest
Huron, California	fall harvest
Imperial Valley of California	fall harvest
Yuma, Arizona	fall harvest

Lighthouse was developed to replace such varieties as Raider, Fallgreen, Gilaben, and Autumn Gold. These are considered "hot-weather" vanguard types, with the ability to head under warm weather conditions with delayed seed stem elongation. Varieties adapted to these conditions must be careful screened for physiological disorders such as tipburn, rib discoloration, and premature bolting. Lighthouse selections were developed to produce heads which are larger than current varieties available, with better internal color, improved leaf texture, and a higher level of heading uniformity for increased yields. All these goals have been met or surpassed with this variety.

Suggested plant/harvest dates for Lighthouse are as follows:

Area	Plant	Harvest
Salinas Valley / King City	05/28 - 07/10	07/30 - 09/15
Huron, California	08/18 - 08/30	10/20 - 11/05
Imperial Valley, California	09/18 - 09/22	12/01 - 12/15
Yuma, Arizona	09/10 - 09/25	11/20 - 12/10

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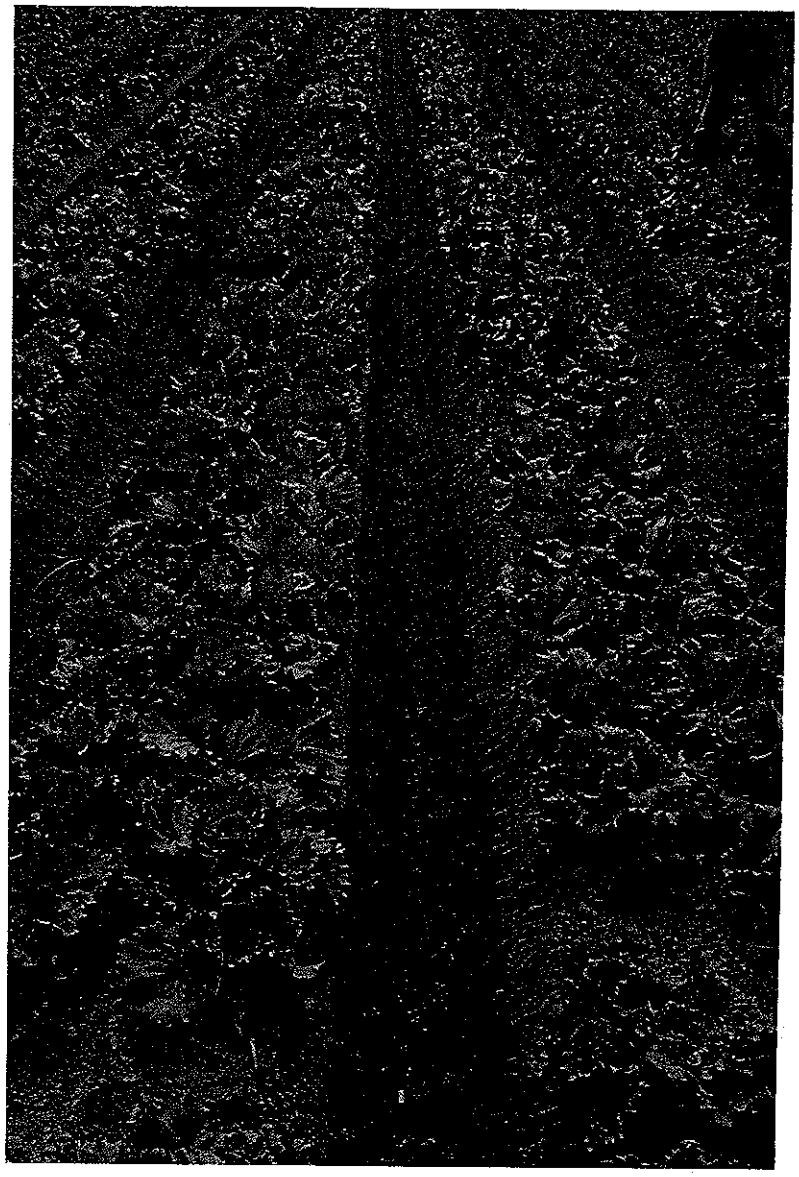

Paragon Seed, Inc.
Huron, California
October, 2003

LIGHTHOUSE **BEACON**

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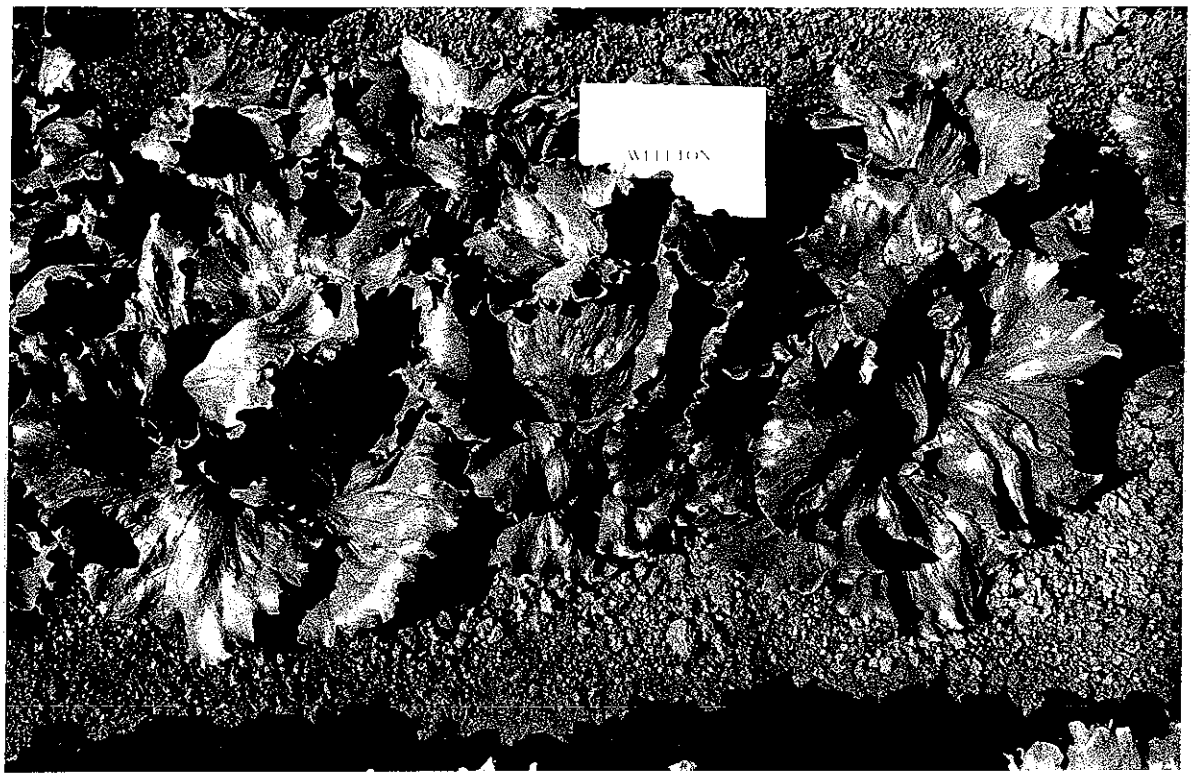
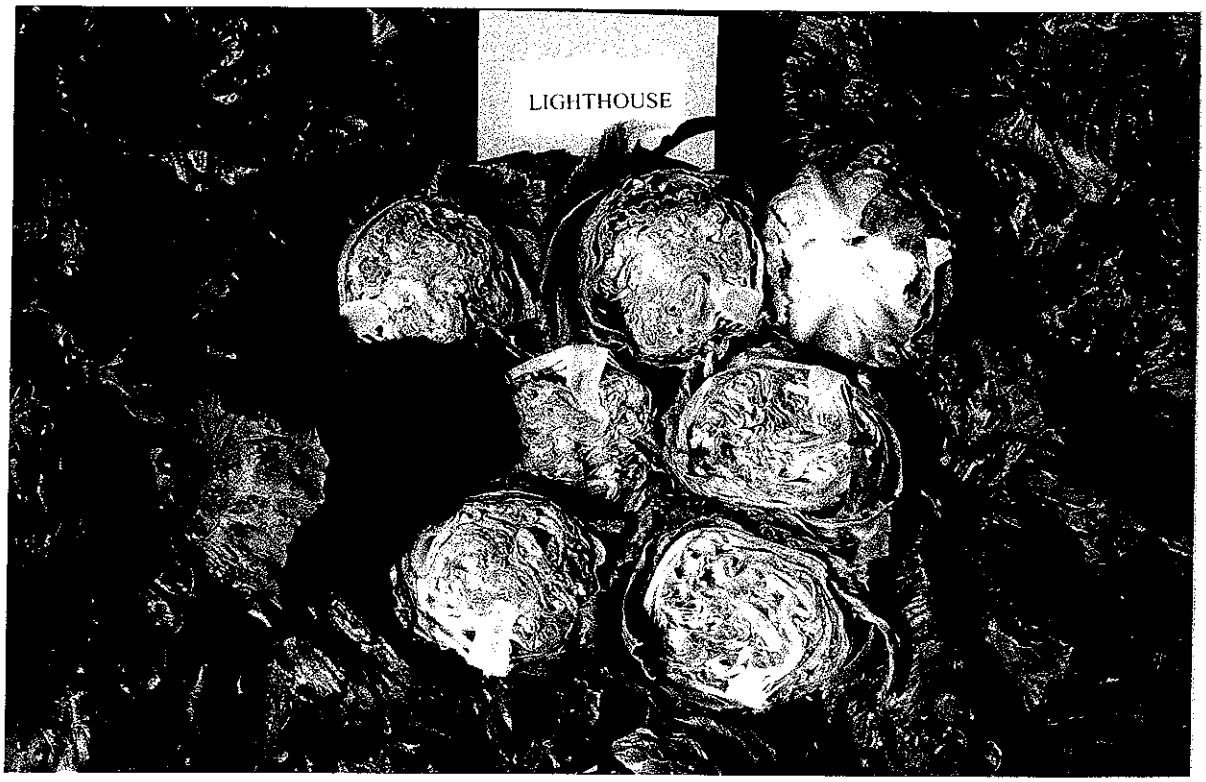
5

LIGHTHOUSE



WELLTON



LIGHTHOUSE

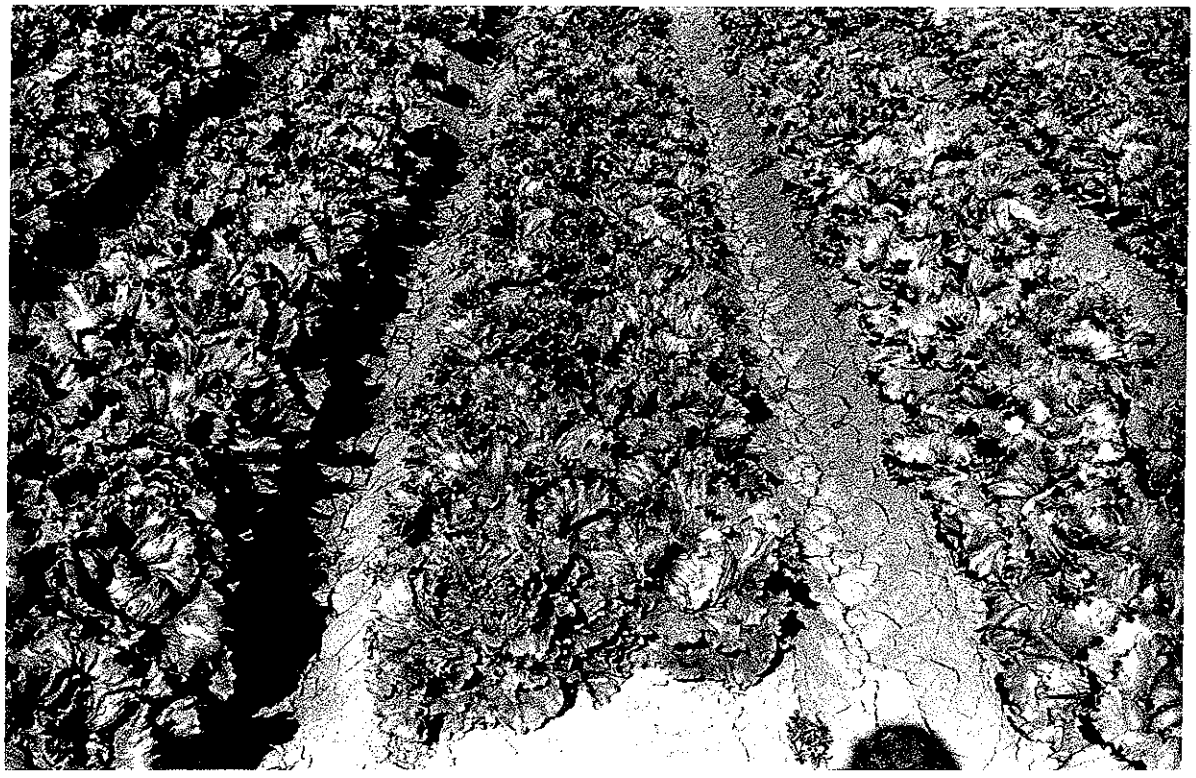
WELLTON

Paragon Seed, Inc. **Huron, California** **October, 2003**

LIGHTHOUSE NINER BEACON

BEACON LIGHTHOUSE

BEACON LIGHTHOUSE



BEACON NINER GABILAN

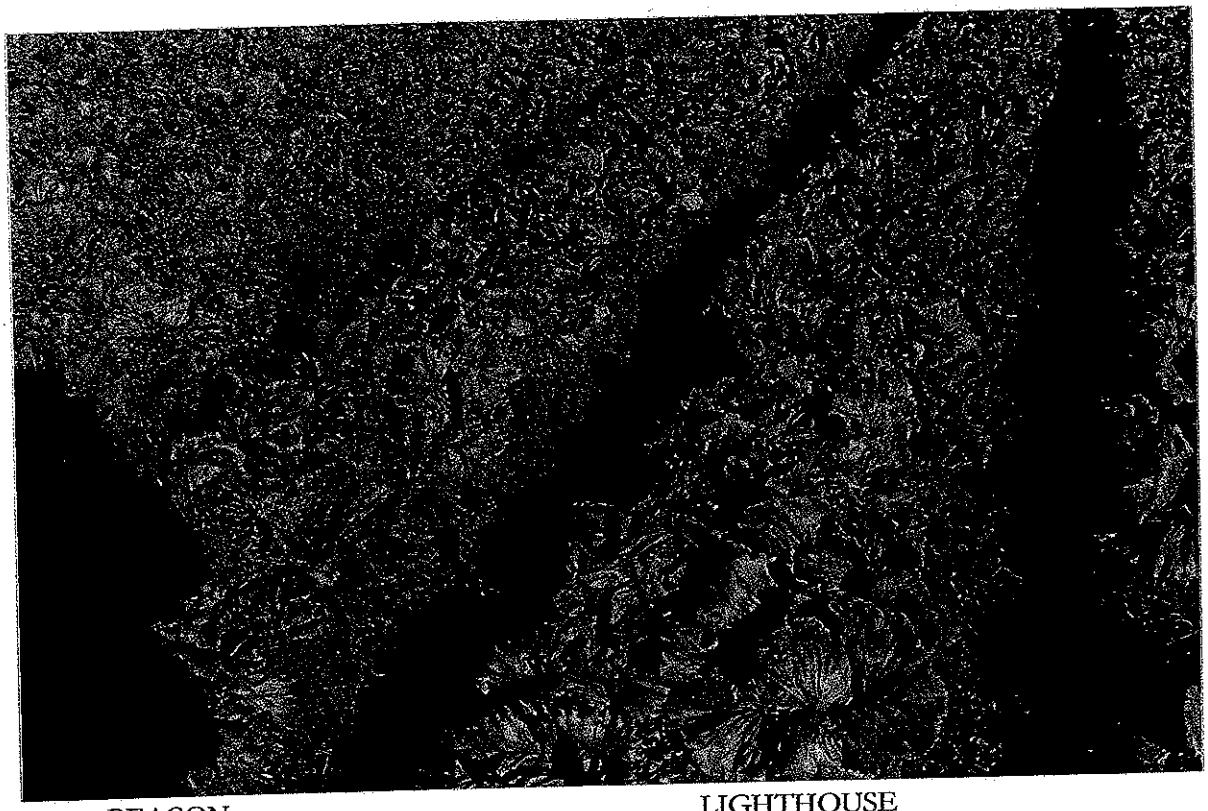
40

Paragon Seed, Inc. Wellton , Arizona November 21 , 2003

NINER GABILAN

LIGHTHOUSE BEACON

Paragon Seed, Inc. Wellton , Arizona November, 2003 Brosey Ranch



BEACON LIGHTHOUSE

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LIGHTHOUSE

NINER

43

BEACON

NINER

9900122

Paragon Seed, Inc.

Lettuce Frame Measurements Lighthouse vs Beacon

Tannehill Ranch Lot 180N King City, California

Plant: July 10, 2004
Harvest September 18, 2004

Leaf tip to Leaf tip (cm's)

Lighthouse	*Beacon*
52	48
50	49
53	47.5
52	48
52	48
52.5	49
52	47.5
51.5	49
53	50.5
52	49
52	48
50.5	48.5
X=51.8	*X=48.5*

Salyer Yarwood Ranch Lot 7 Somerton, Arizona

Lighthouse	*Beacon*
53	49
52	48.5
51.5	50
52	49
52	48.5
50.5	48
52	49
51	50.5
51.5	48.5
52	48
53	49
51	48
X=51.7	*X=48.8*

9900122

STA Laboratories, Longmont, Colorado

This is the output from a genetic analysis program that I used to analyze the three samples from Paragon Seed, Inc. In this report my comments are written in italics. These results are based on the markers we tested.

Pop 1 = Green Leaf (Verde)
Pop 2 = Beacon
Pop 3 = Lighthouse

****
* *
* **POPULATION GENETIC ANALYSIS** *
* **Beacon , Lighthouse, and Green Leaf** *
* *
****

Date : 2004/11/30
Time : 9:57:40

Data Description : D0013

****
**
**
**
** Multi-Populations Descriptive Statistics
**
**
**
****

Summary Statistics :

****
**
**
**
** Nei's Original Measures of Genetic Identity and Genetic distance
**
** [See Nei (1972) Am. Nat. 106:283-292)]
**
**
**
****

9900122

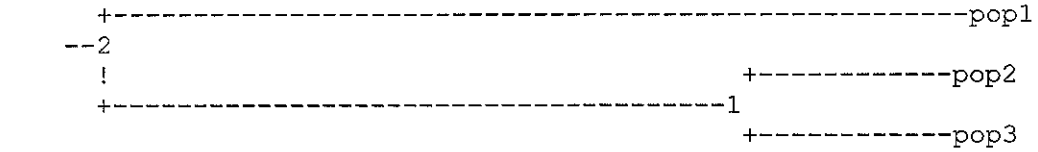
Use the table below to compare the samples. For example looking at above the diagonal shows how similar the samples are (based on the markers we tested). Compare pop 1 with pop 2 shows they are 78% genetically identical and so forth. Compare pop 2 with 3 shows they are 94% genetically identical. Compare pop 1 with 3 shows they are 82% genetically identical. Comparing below the diagonal measures how different the samples are. Again these are based on the markers that we tested.

pop ID	1	2	3
1	****	0.7850	0.8224
2	0.2420	****	0.9439
3	0.1955	0.0577	****

Nei's genetic identity (above diagonal) and genetic distance (below diagonal).

```
**********************************************************************************
**
**
**
**          Dendrogram Based Nei's (1972) Genetic distance: Method = UPGMA
**
**             --Modified from NEIGHBOR procedure of PHYLIP Version 3.5
**
**
**
**********************************************************************************
```

The diagram below is a graphical comparison of the three samples we analyzed. The length of the horizontal lines indicates the degree of relatedness between the samples. For example pop 2 and pop 3 have a short horizontal line going to those two populations from the branch point. That means those two samples are more closely related than they are to pop 1 which has a longer horizontal line.



* File Name: dgram3.plt

Between	And	Length
2	pop1	10.93760
2	1	8.05219
1	pop2	2.88542
1	pop3	2.88542

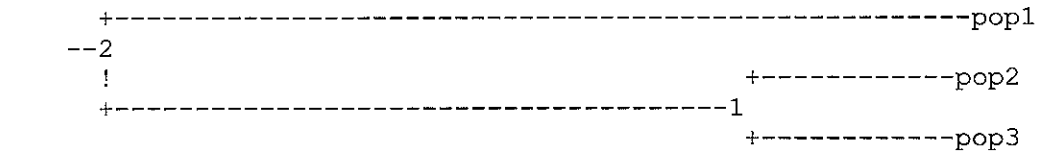
9900122

****
**
**
**
** Nei's Unbiased Measures of Genetic Identity and Genetic distance
**
** [See Nei (1978) Genetics 89:583-590]
**
**
**
****

pop ID	1	2	3
1	****	0.7850	0.8224
2	0.2420	****	0.9439
3	0.1955	0.0577	****

Nei's genetic identity (above diagonal) and genetic distance (below diagonal).

****
**
**
**
** Dendrogram Based Nei's (1978) Genetic distance: Method = UPGMA
**
** --Modified from NEIGHBOR procedure of PHYLIP Version 3.5
**
**
**
****



* File Name: dgram4.plt

Between	And	Length
2	pop1	10.93760
2	1	8.05219
1	pop2	2.88542
1	pop3	2.88542

9900122

Customer: Paragon Seed, Inc.
Contact: John Heintzberger
Address: P.O. Box 1906
Salinas, CA 93902

Project: D0013c
Report Date: November 10, 2004
Species: Lettuce

STA Laboratories, Inc.
1821 Vista View Drive
Longmont, Colorado 80504
(303)651-6417
rras@stalabs.com

For each sample (in columns), a "0" is written if the allele is absent for that marker in the sample. If the allele for that marker is present in the sample a "1" is written for that sample. The results are also color coded in that if all three samples have the same allele they are colored the same color. For markers showing differences between samples a different color is used. Analyze the results by comparing individual rows accross the sample columns. Differences are indicated by a different colors being shown in the row accross the samples. These results represent only those markers which showed the same result on two different repetitions. These are results of SRAP markers and thus are random markers in that the exact chromosomal location of the markers is not known.

Reported By: (Manager - Molecular Breeding Services)

		Samples		
Marker	Allele (bp)	Green Leaf Verde	Beacon	Lighthouse
SRAP-5	460	1	1	1
SRAP-6	140	1	1	1
SRAP-6	163	1	1	1
SRAP-6	167	0	1	0
SRAP-6	197	1	0	0
SRAP-6	272	1	1	1
SRAP-6	286	1	0	0
SRAP-6	337	1	1	1
SRAP-6	443	1	1	1
SRAP-6	463	1	0	0
SRAP-6	474	1	1	1
SRAP-7	146	1	1	1
SRAP-7	181	1	1	1
SRAP-7	200	1	0	1
SRAP-7	232	1	1	1
SRAP-7	239	1	1	1
SRAP-7	251	1	1	1
SRAP-7	293	1	1	1
SRAP-7	308	1	1	1
SRAP-7	343	1	1	1
SRAP-7	378	1	1	1
SRAP-7	381	0	1	1
SRAP-7	384	1	1	1
SRAP-7	401	1	1	1
SRAP-7	410	0	1	1
SRAP-7	473	1	1	1
SRAP-7	506	1	1	1
SRAP-7	530	1	0	0
SRAP-7	534	1	1	1
SRAP-8	114	1	1	1
SRAP-8	119	1	1	1
SRAP-8	135	0	1	1
SRAP-8	232	1	1	1
SRAP-8	256	1	1	1
SRAP-8	303	1	1	1
SRAP-8	335	1	0	0
SRAP-8	350	1	1	1
SRAP-8	367	1	1	1
SRAP-8	375	1	1	1
SRAP-8	437	1	1	1
SRAP-8	441	1	1	1
SRAP-8	446	1	1	1
SRAP-8	485	1	1	1

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Reported By: (Manager - Molecular Breeding Services)

Marker	Allele (bp)	Samples			
		Green Leaf Verde	Beacon	Lighthouse	
SRAP-1	88	1	1	1	
SRAP-1	104	1	1	1	
SRAP-1	109	1	1	1	
SRAP-1	129	1	0	0	
SRAP-1	149	1	1	1	
SRAP-1	176	1	1	1	
SRAP-1	178	1	1	1	
SRAP-1	211	1	1	1	
SRAP-1	223	1	1	1	
SRAP-1	227	0	1	1	
SRAP-1	232	1	1	1	
SRAP-1	256	1	1	1	
SRAP-1	311	1	1	1	
SRAP-1	323	1	0	0	
SRAP-2	91	1	1	1	
SRAP-2	94	1	1	1	
SRAP-2	147	1	1	1	
SRAP-2	163	1	1	1	
SRAP-2	174	1	1	1	
SRAP-2	180	1	1	1	
SRAP-2	189	1	1	1	
SRAP-2	196	1	1	1	
SRAP-2	199	1	1	1	
SRAP-2	207	1	1	1	
SRAP-2	214	0	1	1	
SRAP-2	215	1	1	1	
SRAP-2	300	1	1	1	
SRAP-2	381	1	1	1	
SRAP-2	391	1	1	1	
SRAP-2	411	1	1	1	
SRAP-2	423	1	1	1	
SRAP-2	441	1	1	1	
SRAP-2	479	1	1	1	
SRAP-2	489	1	0	0	
SRAP-2	498	1	1	1	
SRAP-3	128	0	1	0	
SRAP-3	136	1	1	1	
SRAP-3	343	0	1	0	
SRAP-3	371	1	1	1	
SRAP-3	391	1	1	1	
SRAP-3	405	1	1	1	
SRAP-3	436	1	1	1	
SRAP-4	100	0	1	1	
SRAP-4	149	1	1	1	
SRAP-4	154	1	1	1	
SRAP-4	177	1	1	1	
SRAP-4	211	1	0	0	
SRAP-4	224	1	1	1	
SRAP-4	227	1	1	1	
SRAP-4	327	0	1	1	
SRAP-4	415	1	1	1	
SRAP-4	434	0	1	0	
SRAP-5	140	1	1	1	
SRAP-5	163	1	1	1	
SRAP-5	168	1	0	0	
SRAP-5	172	1	0	0	
SRAP-5	204	1	1	1	
SRAP-5	222	1	1	1	
SRAP-5	321	1	1	0	
SRAP-5	353	1	1	1	
SRAP-5	382	1	1	1	
SRAP-5	386	1	1	1	
SRAP-5	424	1	1	1	
SRAP-6	383	1	1	1	

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9900122

Paragon Seed, Inc. Dome Valley, Arizona November 17, 2004

LIGHTHOUSE **BEACON**

Note:

Lighthouse frame is larger than Beacon frame.

Lighthouse heading is more typical of Vanguard strains, whereas, Beacon heading is more from a whorl, typical of eastern Great Lakes type lettuce.

Lighthouse leaf type more similar to Vanguard, dull olive green with low reflectance.

Beacon leaf type is more similar to Gabilan, with a high degree of reflectance,

The leaf surface of Lighthouse is more similar to Vanguard, slightly savoyed, whereas the leaf surface of Beacon is relatively smooth.

The two varieties can be readily distinguished in the field based on leaf type, color, reflectance and overall plant size.

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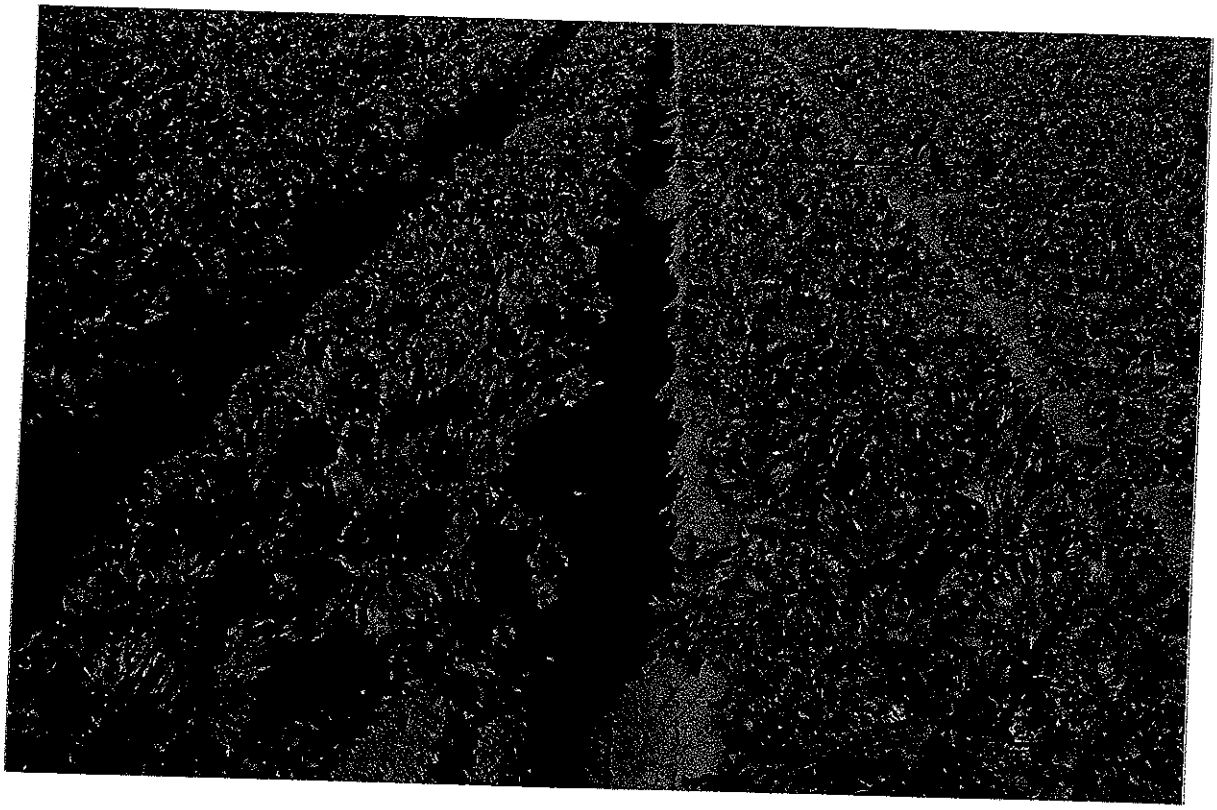
Paragon Seed, Inc. **Dome Valley, Arizona** **Nobember 17, 2004**



LIGHTHOUSE **BEACON**

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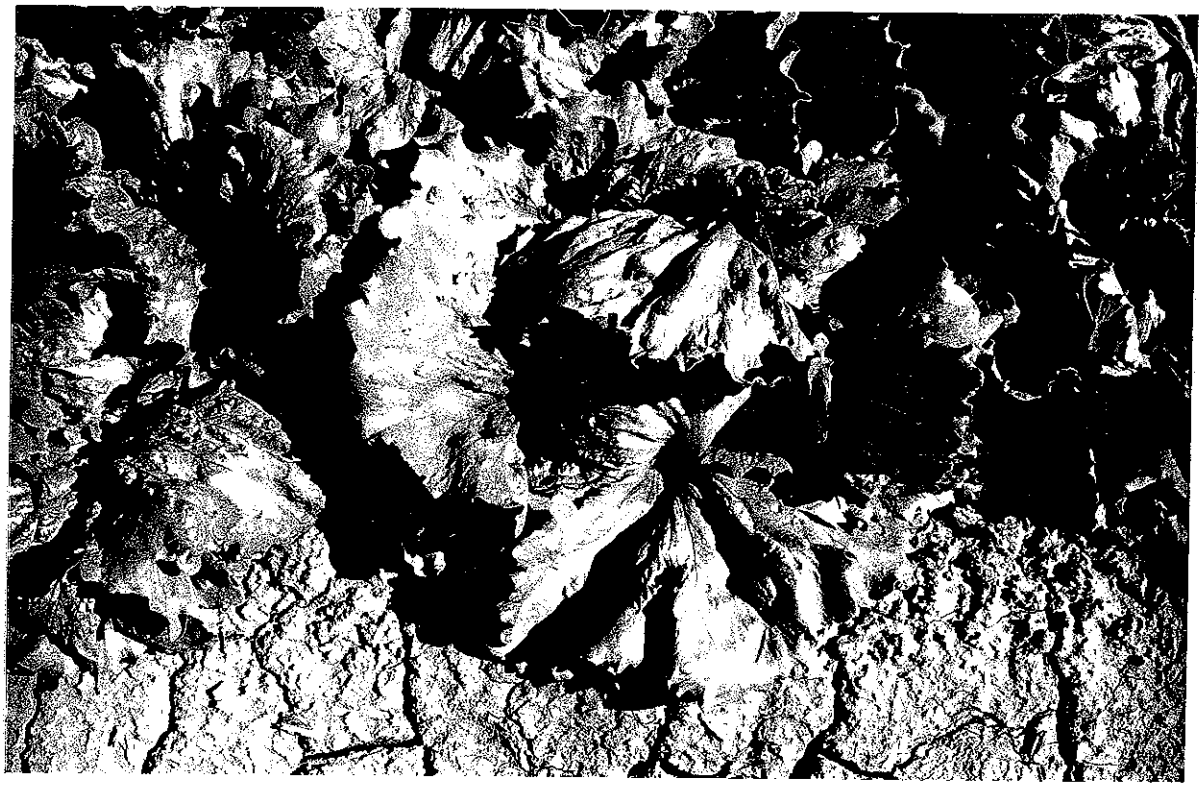
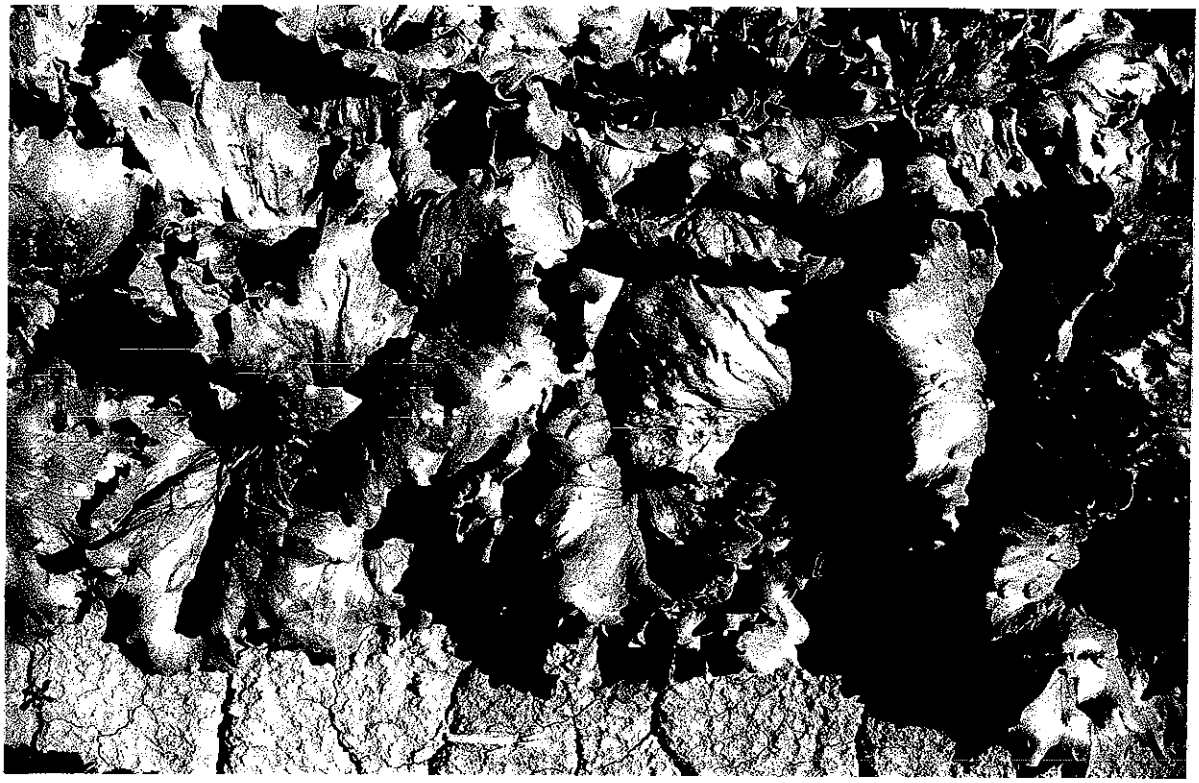
Paragon Seed, Inc. Dome Valley, Arizona Nobember 17, 2004

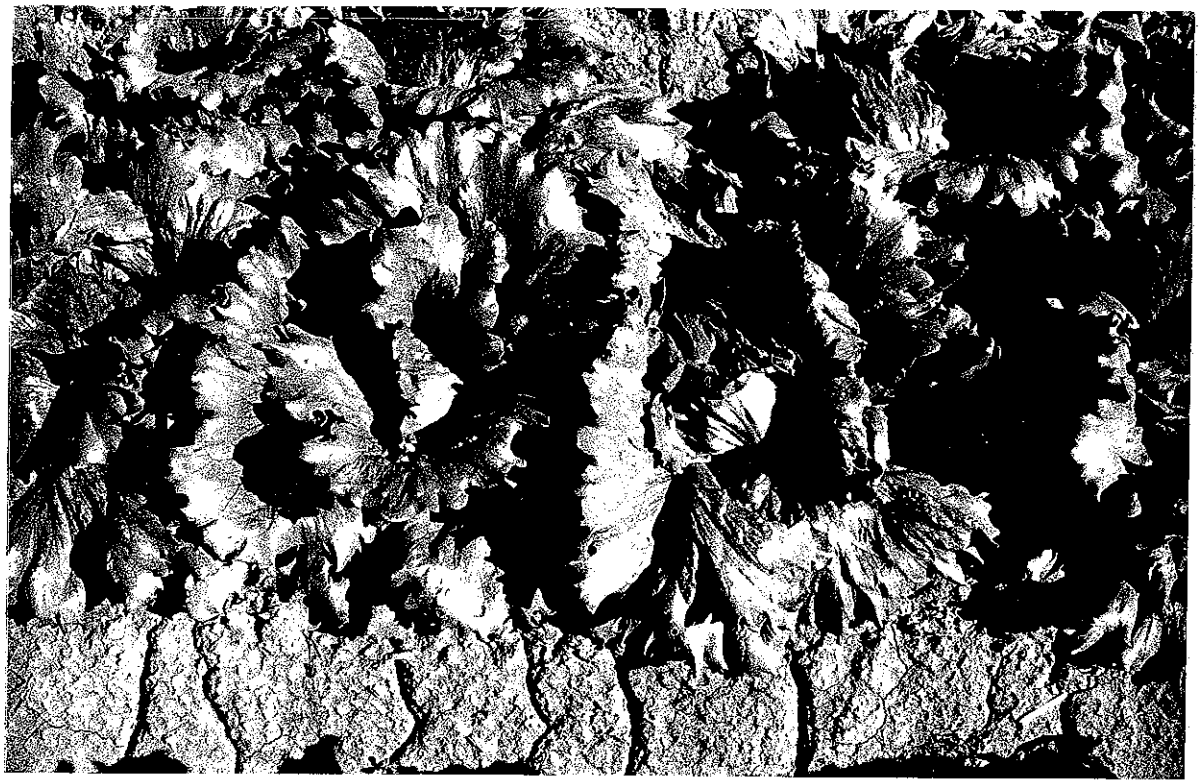
BEACON LIGHTHOUSE



LIGHTHOUSE

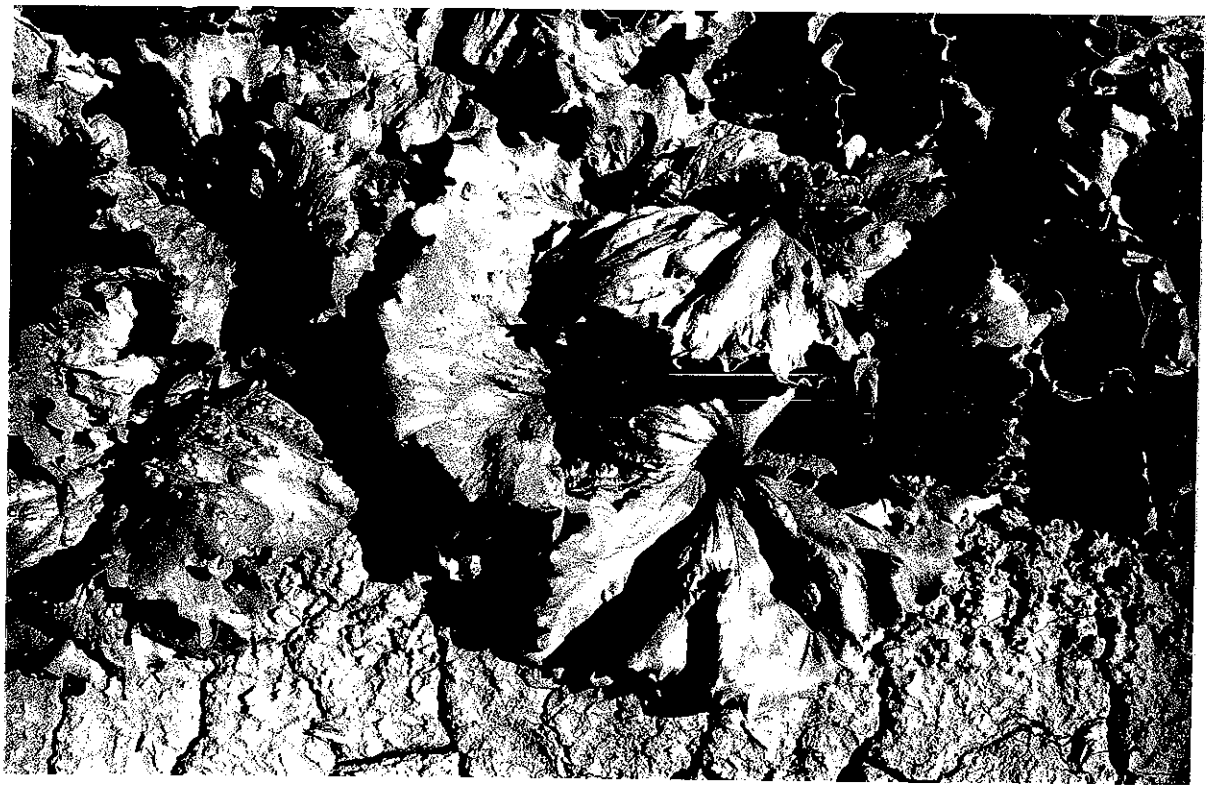


LIGHTHOUSE



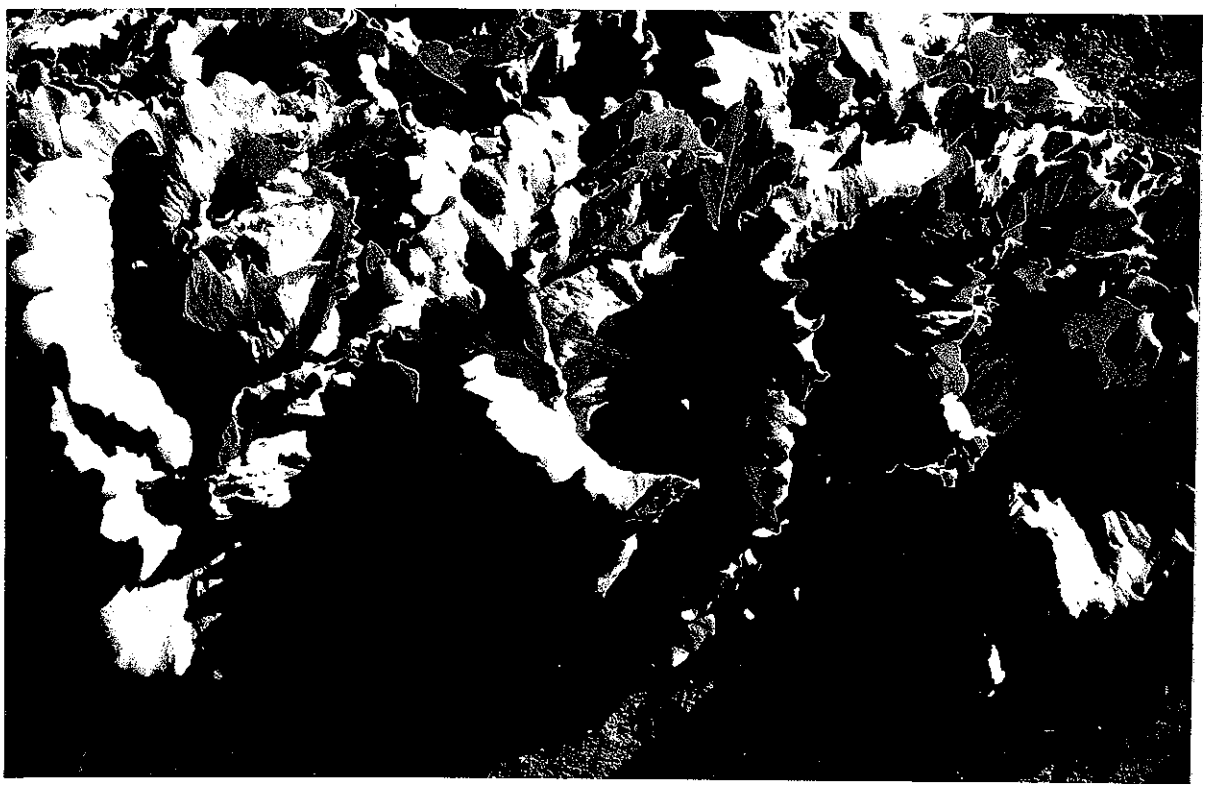
BEACON

Paragon Seed, Inc. Somerton, Arizona November 16, 2004



LIGHTHOUSE

BEACON

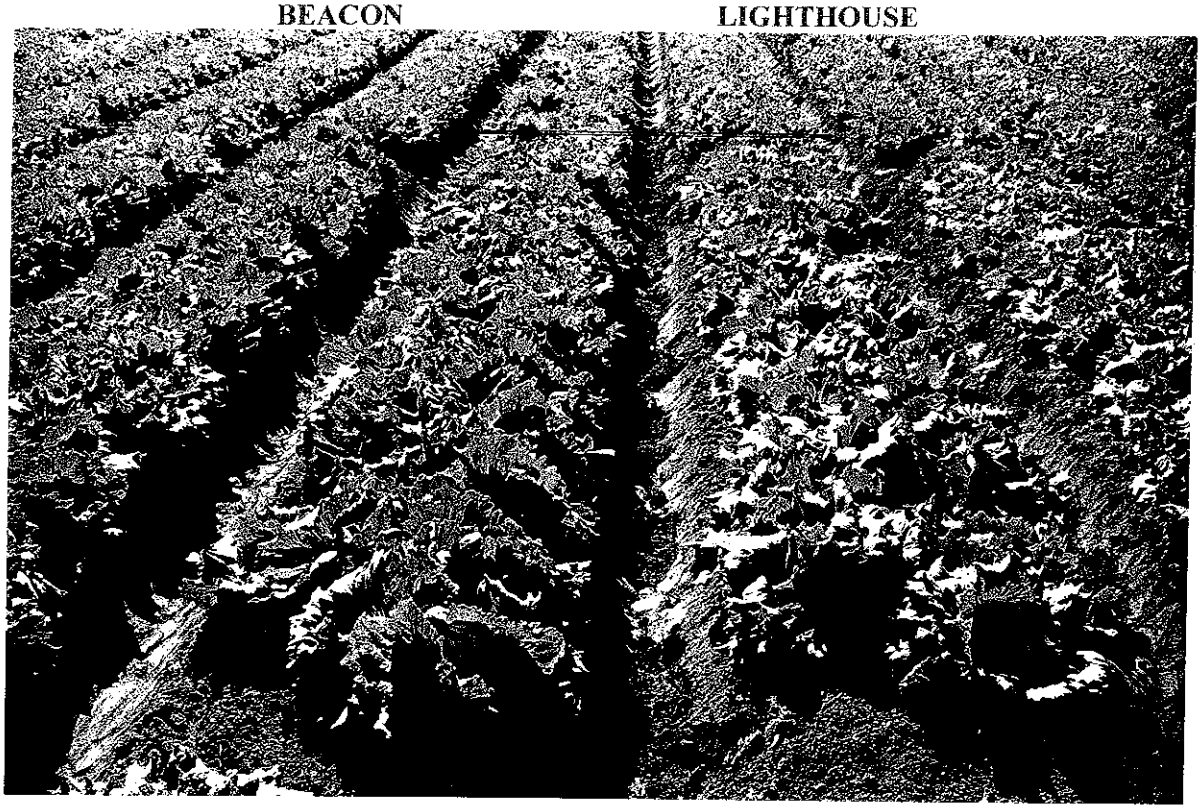


LIGHTHOUSE

BEACON

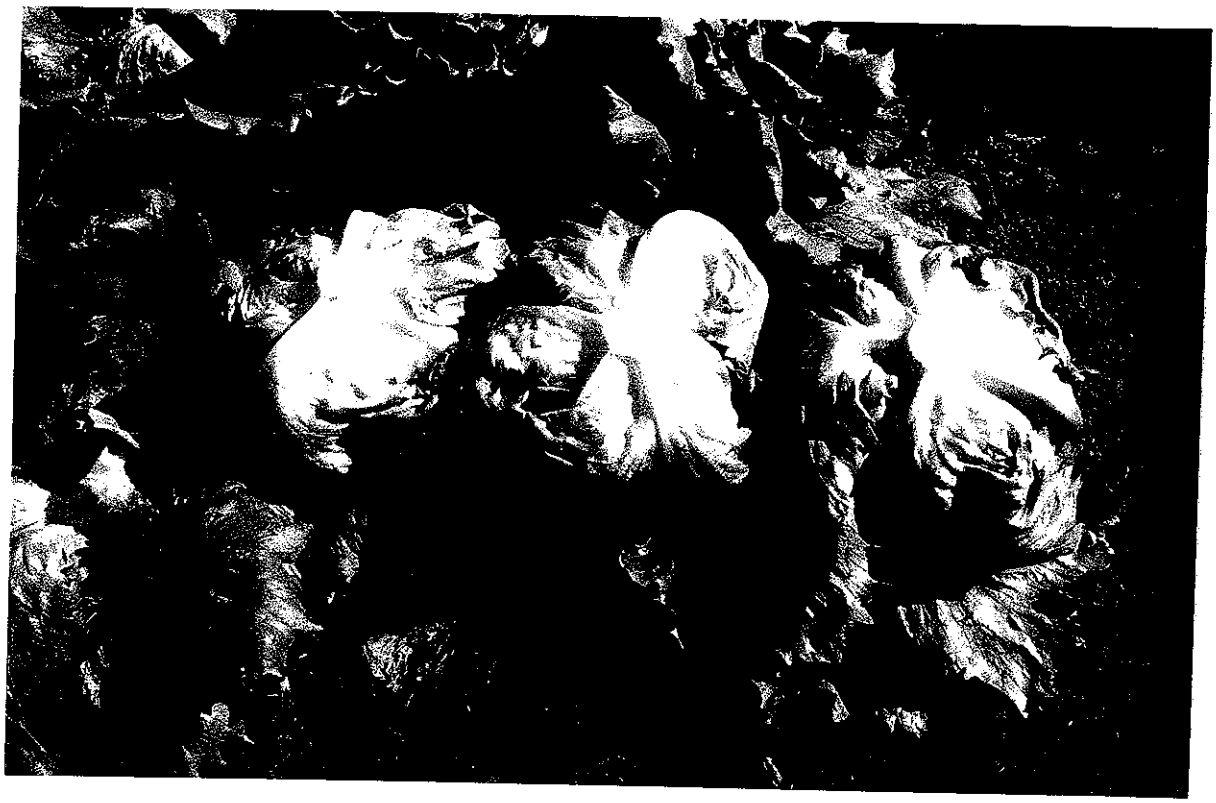
Paragon Seed, Inc. Somerton, Arizona November 16, 2004

BEACON LIGHTHOUSE



LIGHTHOUSE BEACON

Photo taken into sun to show differences in leaf reflectance Beacon high reflectance



BEACON 3 heads showing butt appearance

BEACON 3 heads showing solidity and core height

LIGHTHOUSE 3 heads showing butt appearance

LIGHTHOUSE 3 heads showing solidity and core height

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Paragon Seed, Inc.	EF 5117	Lighthouse
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(include area code)*	**6. FAX** *(include area code)*
507 Abbott Street Salinas, California 93901	831-753-2100	831-753-1470
	7. PVPO NUMBER	9900122

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* **If no, please explain.** [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? [X] YES [ ] NO
If no, give name of country

10. Is the applicant the original owner? [X] YES [ ] NO ***If no, please answer one of the following:***

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?

[ ] YES [ ] NO **If no, give name of country**

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?

[ ] YES [ ] NO **If no, give name of country**

11. Additional explanation on ownership *(if needed, use reverse for extra space)*:

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.